INTERNATIONAL RECORD OF MEDICINE

VOLUME 169 NO. 11 | NOVEMBER 1956

&

GENERAL PRACTICE CLINICS

ORIGINALLY PUBLISHED AS AMERICAN MEDICAL INTELLIGENCER, FOUNDED PHILADELPHIA, 1837

SYMPOSIUM ON MEDICINE AND WRITING

The Editing of a Modern Medical Textbook — Russell L. Cecil

Plain Talk and Clear Writing — Morris Fishbein

On Writing a History of Medicine — Douglas Guthrie

The Art of Communication — Joseph Garland

The Principles of Bibliographic Citation: An Informal Discourse Addressed to Writers of Scientific Papers — John F. Fulton

Minerva and Aesculapius: The Physician as Writer — Felix Marti-Ibañez

Clinical Experiences with Pipradrol and a Pipradrol-Reserpine Combination — Sidney Cohen

Editorial Survey: On Medicine and Writing

International Clinical Newsletter

Advanced Reports from Current Medical Meetings

A JOURNAL OF MD PUBLICATIONS, INC.

MD INTERNATIONAL SYMPOSIA MONOGRAPH No. 3

Psychiatry *and* Religion

Thirteen scientific authorities and ministers of different religions explore the conflicts of the human psyche and open up new vistas for meaningful cooperation between the psychiatrist and churchman. An absorbing discussion of interest to the psychologist, sociologist, anthropologist, psychiatrist, theologian, religious historian, the clergy, and the intelligent layman. A most unusual and attractively bound volume. 68 pp. **Price: $3.00.**

C O N T E N T S

SYMPOSIUM ON PSYCHIATRY AND RELIGION
An Introduction by Werner Wolff, Ph.D., Professor of Psychology, Bard College, Annandale-on-Hudson, N. Y.

THE PSYCHE AND THE SYMBOLS OF RELIGION
by M. Esther Harding, M.D., M.R.C.P., New York City.

PSYCHOANALYSIS AND RELIGION, AN HISTORICAL VIEW OF FREUD
by Fred H. Blum, Dept. of General Studies, Social Science Program, University of Minnesota, Minneapolis, Minn.

A CURRENT PSYCHOANALYTIC CONCEPT OF GOD
by Josephine H. Ross, Ph.D., New York City.

ANTHROPOLOGIC VIEW OF A PRIMITIVE RELIGION
by Gladys A. Reichard, Professor of Anthropology, Barnard College, Columbia University, New York City.

THE SOCIOLOGIC DEFINITION OF RELIGION
by Joseph Maier, Ph.D., M.A., Newark College of Arts and Sciences, Rutgers University, New Brunswick, N. J.

TOWARDS AN OPERATIONAL DEFINITION OF RELIGION
by Rabbi Samuel Glasner, Ed.D., Director, Dept. of Reform Jewish Education, Board of Jewish Education, Baltimore, Md.

RELIGION AND PSYCHOTHERAPY: PRACTICAL ASPECTS
by Lawson G. Lowrey, M.D., A.M., Asst. Clinical Professor, College of Physicians and Surgeons, Columbia University; Associate in Psychiatry, Vanderbilt Clinic, New York City.

VALUE SYSTEMS IN THE PSYCHOTHERAPEUTIC PROCESS
by Warner L. Lowe, Ph.D., Asst. Director, Alfred Adler Mental Hygiene Clinic, New York City.

PERSONALITY NEEDS, RELIGION, AND PSYCHOTHERAPY
by Alexander A. Schneiders, Ph.D., Professor of Psychology and Director of Psychological Services, Fordham University, New York City.

PSYCHOTHERAPY AND THE MINISTRY
by Abraham N. Franzblau, M.D., Ph.D., Professor of Pastoral Psychiatry and Dean of New York Schools, Hebrew Union College, Jewish Institute of Religion; Asst. Attending Psychiatrist, Mount Sinai Hospital, New York City.

THE NEED TO BELIEVE
by Mortimer Ostow, M.D., New York City.

SPECIAL EDITORIAL:
On Christmas and Neuroses
by Féliz Martí-Ibáñez, M.D.

WRITE TO: MD PUBLICATIONS, INC., 30 EAST 60TH STREET, NEW YORK 22, N. Y.

INTERNATIONAL RECORD OF MEDICINE

A JOURNAL OF ADVANCED EXPERIMENTAL AND CLINICAL REPORTS

&

GENERAL PRACTICE CLINICS

ORIGINALLY PUBLISHED AS AMERICAN MEDICAL INTELLIGENCER, FOUNDED PHILADELPHIA, 1837

FELIX MARTI-IBAÑEZ, M.D., Editor

VOL. 169 NO. 11 *WHOLE NUMBER 2885* *NOVEMBER 1956*

The *International Record of Medicine and General Practice Clinics* is published monthly by MD Publications, Inc. (30 E. 60th Street, New York, N. Y., Félix Martí-Ibáñez, M.D., President). ©Copyright 1956 by MD Publications, Inc. Entered as second class matter at the Post Office, Washington, D. C., under the Act of March 3, 1879. Matter appearing in *International Record of Medicine and General Practice Clinics* is covered by copyright. The reproduction of articles (or parts of articles) appearing in *International Record of Medicine and General Practice Clinics* is not permitted. Permission must be received in writing from the editor for reprinting material in whole or in part. Subscription Rate: $11.00 for one year. $28.00 for three years.

EDITORIAL BOARD

FELIX MARTI-IBAÑEZ, M.D., Editor

NATIONAL EDITORIAL BOARD

FRED L. ADAIR, M.D., *University of Chicago*

HARRY L. ARNOLD, JR., M.D., *Editor, Hawaii Medical Journal, Honolulu, Hawaii*

W. WAYNE BABCOCK, M.D., *Temple University*

HOWARD C. BALLENGER, M.D., *Northwestern University*

CONRAD BERENS, M.D., *The Ophthalmological Foundation*

ALEXANDER W. BLAIN, M.D., *Wayne University*

ALFRED BLALOCK, M.D., *Johns Hopkins University*

W. F. BRAASCH, M.D., *Mayo Clinic*

ROBERT H. BROH-KAHN, M.D., *New York, N. Y.*

MORTON S. BRYER, M.D., *The Mount Sinai Hospital*

LEROY A. CALKINS, M.D., *University of Kansas*

NORTON CANFIELD, M.D., *New Haven, Conn.*

BAYARD CARTER, M.D., *Duke University*

RUSSELL L. CECIL, M.D., *Cornell University*

F. CO TUI, M.D., *Creedmoor Institute*

FREDERICK A. COLLER, M.D., *University of Michigan*

WILLARD R. COOKE, M.D., *University of Texas*

WALTER T. DANNREUTHER, M.D., *New York University*

CLYDE L. DEMING, M.D., *Yale University School of Medicine*

R. S. DINSMORE, M.D., *Cleveland Clinic*

HENRY DOLGER, M.D., *New York, N. Y.*

I. E. DRABKIN, PH.D., *The College of the City of New York*

DANIEL C. ELKIN, M.D., *Emory University*

LUDWIG A. EMGE, M.D., *Stanford University*

HAROLD K. FABER, M.D., *Stanford University Hospital*

HARRY A. FELDMAN, M.D., *State University of New York*

JOSEPH H. FOBES, M.D., *New York Medical College*

A. STONE FREEDBERG, M.D., *Harvard Medical School, Boston, Mass.*

WILLIS D. GATCH, M.D., *University of Indiana*

LOUIS J. GELBER, M.D., *Rockville Center, L. I., N. Y.*

DAVID GROB, M.D., *Johns Hopkins Medical School*

BERNARD J. HANLEY, M.D., *University of Southern California*

FRENCH K. HANSEL, M.D., *Washington University*

CLYDE A. HEATLY, M.D., *University of Rochester*

HENRY F. HELMHOLTZ, M.D., *Mayo Clinic*

FRANK HINMAN, M.D., *University of California*

CLARENCE B. INGRAHAM, M.D., *University of Colorado*

J. BAY JACOBS, M.D., *Georgetown University*

ROBERT W. KEETON, M.D., *University of Illinois*

HARRY H. KERR, M.D., *George Washington University*

WILLIAM J. KERR, M.D., *Blue Lake, California*

I. NEWTON KUGELMASS, M.D., *New York, N. Y.*

THEODORE LIDZ, M.D., *Yale University School of Medicine*

DEAN M. LIERLE, M.D., *University of Iowa*

IRVINE MCQUARRIE, M.D., *University of Minnesota*

RALPH H. MAJOR, M.D., *University of Kansas*

ALTON OCHSNER, M.D., *Tulane University*

HENRY BOYLAN ORTON, M.D., *Newark, N. J.*

WINFRED OVERHOLSER, M.D., *George Washington University*

JAMES E. PAULLIN, M.D., *Emory University*

FRANKLIN L. PAYNE, M.D., *University of Pennsylvania*

E. D. PLASS, M.D., *University of Iowa*

TRACY J. PUTNAM, *Beverly Hills, California*

B. O. RAULSTON, M.D., *University of Southern California*

LYMAN G. RICHARDS, M.D., *Massachusetts Institute of Technology*

LEONARD G. ROWNTREE, M.D., *Miami, Fla.*

RAYMOND R. SACKLER, M.D., *New York, N.Y.*

MILTON S. SACKS, M.D., *University of Maryland School of Medicine*

MORRIS SCHAEFFER, M.D., *Director, Communicable Disease Center, Montgomery, Ala.*

LEWIS C. SCHEFFEY, M.D., *Jefferson Medical College*

SIDNEY SCHERLIS, M.D., *University of Maryland School of Medicine*

EDWARD A. SCHUMANN, M.D., *Phila., Pa.*

CYRUS C. STURGIS, M.D., *University of Michigan*

HERBERT THOMS, M.D., *Yale University*

DONALD V. TRUEBLOOD, M.D., *Seattle, Wash.*

JAMES J. WARING, M.D., *University of Colorado*

KARL M. WILSON, M.D., *University of Rochester*

FRED W. WITTICH, M.D., *Minneapolis, Minn.*

FLETCHER D. WOODWARD, M.D., *Charlottesville, Va.*

INTERNATIONAL EDITORIAL BOARD

ROMA AMYOT, M.D., *Editor-in-Chief, L'Union Medicale du Canada*

GASTON BACHELARD, M.D., *Directeur de l'Institut d'Histoire des Sciences, La Sorbonne, Paris, France*

GEOFFRY H. BATEMAN, *London, England*

PAUL DIEPGEN, M.D., *Director of Medizinhistorischen Institutes der Johannes Gutenberg Univ., Mainz, Germany*

PEDRO LAIN ENTRALGO, M.D., *Profesor de Historia de la Medicina, Madrid, Spain*

PROF. A. GIGON, *Schweizerische Akademie der Medizinischen, Wissenschaften, Basel, Switzerland*

EDV. GOTFREDSEN, M.D., *Director of the Universitetets Medicinsk-Historiske Museum, Copenhagen, Denmark*

DOUGLAS GUTHRIE, M.D., *Professor of the History of Medicine, University of Edinburgh, Edinburgh, Scotland*

WILLY HARTNER, M.D., *Johann Wolfgang Goethe Universität, Frankfurt a. M., Germany*

E. HINTZCHE, M.D., *Anatomisches Institut Bern, Switzerland*

BJORN IBSEN, M.D., *Kobenhavns Hospitalvaesen, Communehospitalet, Kobenhaven, Denmark*

JUAN B. LASTRES, M.D., *Profesor de Historia de la Medicina, Universidad de San Marcos, Lima, Peru*

ADOLF MEYER-ABICH, M.D., *Hamburg-Blankenese, Elbchaussee 460, Germany*

ANDRE MOULONGUET, M.D., *Paris, France*

PROF. RODOLFO PÉREZ DE LOS REYES, *Universidad de La Habana, Cuba*

AUGUSTO PI-SUÑER, M.D., *Instituto de Medicina Experimental, Caracas, Venezuela*

ILSE ROSENTHAL-SCHNEIDER, Ph.D., *The University of Sydney, Sydney, Australia*

ANIBAL RUIZ MORENO, M.D., *Profesor de Historia de la Medicina, Buenos Aires, Argentina*

KENNETH F. RUSSELL, M.S., F.R.A.C.S., *Associate Professor of Anatomy, The University of Melbourne, Melbourne, Australia*

TH. H. SCHLICHTING, M.D., *Amsterdam, Holland*

HANS SELYE, M.D., *Université de Montréal, Montreal, Canada*

PROF. IVOLINO DA VASCONCELLOS, *President, Sociedad Brasileña de de Historia da Medicina, Rio de Janeiro, Brazil*

MD INTERNATIONAL SYMPOSIA MONOGRAPH No. 2

MEDICAL WRITING

Good writing is just as essential in the medical profession as in any other field.

In this symposium, a panel of distinguished medical writers describe the how and why of writing clear and cogent medical articles and books.

Invaluable for the physician interested in the practical principles of medical writing, as well as the enrichment of his own culture in the medical humanities.

A very unusual and attractive book gift for a fellow physician.

72 pp. **Price: $3.00.**

contents

THOUGHTS ON THE PHYSICIAN'S WRITING AND READING
by Henry Sigerist, M.D., Pura, Ticino, Switzerland.

HOW NOT TO WRITE A MEDICAL PAPER
by Hans Selye, M.D., Professor and Director, Institut de Médecine et de Chirurgie Expérimentales, Université de Montréal, Canada.

AN EDITOR'S PREJUDICES
by Hugh Clegg, M.D., Editor, British Medical Journal, *London, England.*

MEDICAL WRITING
by Walter C. Alvarez, M.D., former Professor of Medicine, University of Minnesota; Editor, Modern Medicine, *Chicago, Ill.*

BOOKS IN THE PHYSICIAN'S LIFE
by Féliz Martí-Ibáñez, M.D., Editor-in-Chief, International Record of Medicine & General Practice Clinics, *New York City.*

WRITE TO: MD PUBLICATIONS, INC., 30 EAST 60TH STREET, NEW YORK 22, N. Y.

this capsule ...relieves gastroduodenal, biliary pain = spasm usually in 10 minutes

visceral eutonic

DACTIL®

PLAIN AND WITH PHENOBARBITAL

- restores and maintains normal tonus and motility
- does not interfere with digestive secretions
- notably free from constipation and urinary retention

DACTIL is the *only* brand of N-ethyl-3-piperidyl diphenylacetate hydrochloride.

LAKESIDE

01055

health and travel

Complete proceedings of the First Symposium on Health and Travel, held in June of 1955. Travel for the young, the old, the sick; by car, air, train, boat, and space ship; in the continental U. S., Europe, Latin America, Asia; in tropical and subtropical climes. All these problems are covered in their physiologic and psychologic aspects by top specialists in their field. The monograph includes detailed information on prophylaxis and treatment, as well as historical and entertaining general data. This attractive hard-cover book is a classic reference book for your library, as well as an attractive and much appreciated gift for a fellow physician. 72 pp. **Price: $3.00.**

contents

THE PHYSICIAN AS TRAVELER
by Félix Martí-Ibáñez, M.D.,
Editor-in-Chief, INTERNATIONAL RECORD OF MEDICINE & GENERAL PRACTICE CLINICS.

WHEN CHILDREN TRAVEL
by I. Newton Kugelmass, M.D.,
Consultant, Dept. of Health & Hospitals, New York City.

WHEN PEOPLE WHO ARE NOT YOUNG TRAVEL
by William T. Foley, M.D.,
Assistant Professor of Clinical Medicine & Chief of the Vascular Clinics, New York Hospital, New York City.

INFECTIONS AND TRAVEL
by Elmer H. Loughlin, M.D.,
Associate Clinical Professor of Medicine, New York Medical College, Flower & Fifth Avenue Hospital, New York City.

WHEN SICK PEOPLE TRAVEL
by Walter C. Alvarez, M.D.,
Editor-in-Chief, MODERN MEDICINE

TRAVEL AND MOTION SICKNESS
by Herman I. Chinn, Ph.D.,
Chief, Dept. of Pharmacology-Biochemistry, USAF School of Aviation, Randolph Field, Texas.

STRESS AND TRAVEL
by Gaétan Jasmin, M.D.,
Institute of Experimental Medicine, Montreal, Canada.

SEA TRAVEL AND HEALTH
by William L. Wheeler, Jr., M.D.,
Medical Director, W. R. Grace & Company, New York City.

GEOGRAPHY, TRAVEL AND DISEASE
by Jacques, M. May
Head, Dept. of Medical Geography, American Geographical Society, New York City.

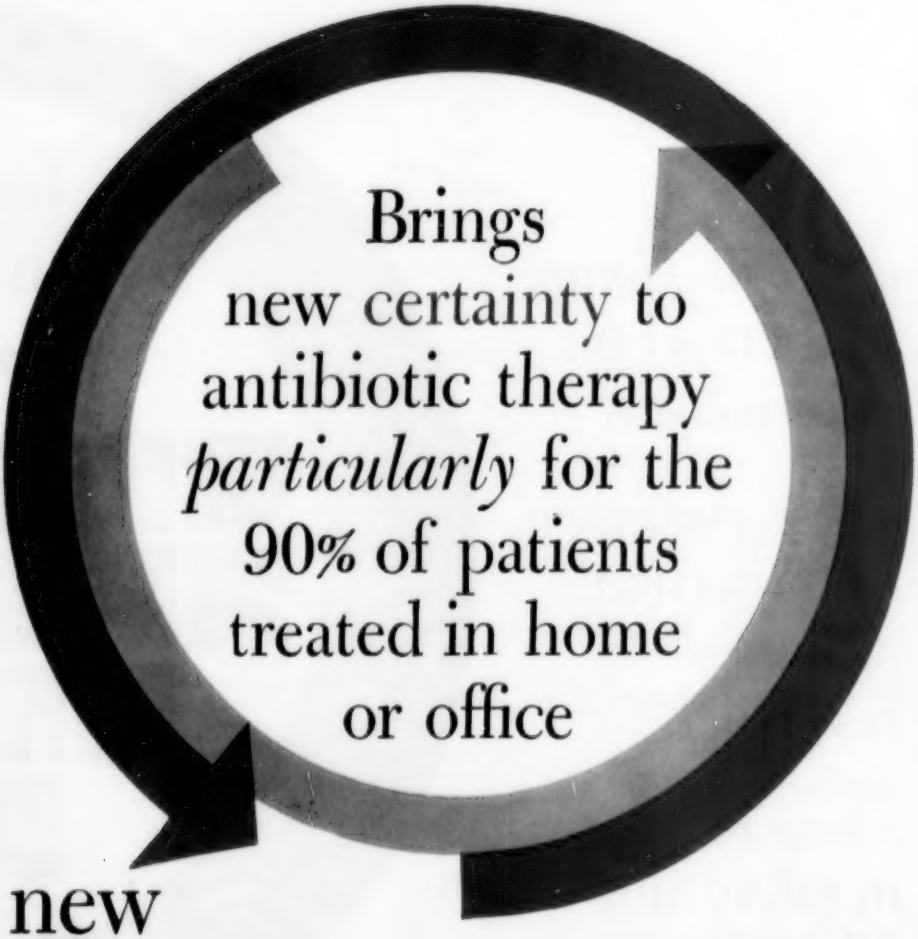
MEDICAL PROBLEMS OF SPACE FLIGHT
by Hubertus Strughold, M.D,
Chief, Dept. of Space Medicine, USAF School of Aviation Medicine, Randolph Field, Texas.

PHYSIOLOGIC DAY-NIGHT CYCLE AFTER LONG DISTANCE FLIGHTS
by Hubertus Strughold, M.D., Ph.D.,
Chief, Dept. of Space Medicine, USAF School of Aviation Medicine, Randolph Field, Texas.

NUTRITION AND FLIGHT
by Col. Miriam E. Perry,
Chief, Women's Medical Specialist Corps, USAF, Office of Surgeon General, Washington, D. C.

NEW PERSPECTIVES OF HEALTH AND TRAVEL. A SUMMATION OF THE SYMPOSIUM
by Félix Martí-Ibáñez, M.D.,
Editor-in-Chief of the INTERNATIONAL RECORD OF MEDICINE & GENERAL PRACTICE CLINICS.

WRITE TO: MD PUBLICATIONS, INC., 30 EAST 60TH STREET, NEW YORK 22, N. Y.



new

Sigmamycin*

OLEANDOMYCIN TETRACYCLINE

*TRADEMARK

a new maximum
in therapeutic
effectiveness

a new maximum
in protection
against
resistance

a new maximum
in safety and
toleration

for
your
entire

multi-spectrum
synergistically
strengthened...

Sigma

OLEANDOMYCIN TETRACYCLINE

patient
population

mycin*

a new certainty

in antibiotic therapy, particularly for the 90% of patients treated at home and in the office

Superior control of infectious diseases through superior control of the changing microbial population is now available in a new formulation of tetracycline, outstanding broad-spectrum antibiotic, with oleandomycin, Pfizer-discovered new antimicrobial agent which controls resistant strains. The synergistic combination now brings to antibiotic therapy: (1) a new fuller antimicrobial spectrum which includes even "resistant" staphylococci; (2) new superior protection against emergence of *new* resistant strains; (3) new superior safety and toleration.

*TRADEMARK

Pfizer

superior control of infectious disease through superior control of the changing microbial population

new

Sigmamycin*

OLEANDOMYCIN TETRACYCLINE

A synergistically strengthened multi-spectrum antibiotic

Sigmamycin is a new antibiotic formulation providing: (1) the unsurpassed broad-spectrum activity of tetracycline, the outstanding broad-spectrum antibiotic discovered and identified by Pfizer; (2) the action of oleandomycin, the new antimicrobial agent which combats those strains, particularly among staphylococci, now resistant to tetracycline and other antibiotics.

Sigmamycin embodies a new concept in the use of antibiotics, for with this new synergistically active preparation, the development of refractory pathogens and their emergence as important sources of superinfection are more fully controlled.

New superior safety and toleration— Sigmamycin brings to antibiotic therapy new superior safety, new unexcelled toleration because: (1) tetracycline, an outstandingly well-tolerated antibiotic, is formulated with oleandomycin, also known to be remarkably free of adverse reactions; (2) the synergism between oleandomycin and tetracycline enhances antimicrobial potency.

Dosage: 1 to 2 capsules q.i.d.

Supplied: Capsules, 250 mg. (oleandomycin 83 mg., tetracycline 167 mg.) Bottles of 16 and 100.

*TRADEMARK

Pfizer

PFIZER LABORATORIES, *Division, Chas. Pfizer & Co., Inc.*, Brooklyn 6, N. Y.

INTERNATIONAL RECORD OF MEDICINE

& GENERAL PRACTICE CLINICS

VOL. 169 NO. 11 WHOLE NUMBER 2885 NOVEMBER 1956

SYMPOSIUM ON MEDICINE AND WRITING

RUSSELL L. CECIL — The Editing of a Modern Medical Textbook 685

MORRIS FISHBEIN — Plain Talk and Clear Writing 692

DOUGLAS GUTHRIE — On Writing a History of Medicine 695

JOSEPH GARLAND — The Art of Communication 703

JOHN F. FULTON — The Principles of Bibliographic Citation: An Informal Discourse Addressed to Writers of Scientific Papers 710

FELIX MARTI-IBAÑEZ — Minerva and Aesculapius: The Physician as Writer 723

Biographical Notes on the Contributors to the Symposium on Medicine and Writing 746

Editorial Survey: On Medicine and Writing 750

International Clinical Newsletter ..... opp. p. 750

SIDNEY COHEN — Clinical Experiences with Pipradrol and a Pipradrol-Reserpine Combination 751

GENERAL PRACTICE CLINICS

Advanced Reports from Current Medical Meetings

Approaching the Problem of Radiation Hazards 757

Penicillin Still Safe and Useful 757

Psychotherapy in Epilepsy 757

Cardiac Patients Good Job Risks 757

Single Shot Vaccine for Four Diseases Foreseen 758

Oral Substitutes for Insulin 758

Radioactive Isotopes for Spotting Future Cardiacs 758

"The Human Element" in General Practice 759

Blood Grouping and Disease Susceptibility 759

Time Factors in Nutrition 759

New Steroids for Premenstrual Tension 760

...her fears of crowds and cancer ceased to worry her[1]

case report

"40-year-old woman with overt anxiety symptoms . . . marked fear of crowds . . . phobic ideas concerning cancer. Tension, irritability, and tiredness were in evidence."

medication:

'Thorazine', 25 mg. orally, t.i.d.

response:

"Following ['Thorazine'] medication she became placid, composed and cheerful. When asked about her fears, she smiled and readily stated that they had ceased to worry her." She is now running her household for her husband and young son without difficulty.[1]

THORAZINE*

is available in ampuls, tablets and syrup (as the hydrochloride), and in suppositories (as the base).

Smith, Kline & French Laboratories, Philadelphia

*T.M. Reg. U.S. Pat. Off. for chlorpromazine, S.K.F.

1. Silverman, M.: J. Ment. Sc. *101*:640 (July) 1955.

INTERNATIONAL RECORD OF MEDICINE

VOL. 169 NO. 11 WHOLE NUMBER 2885 NOVEMBER 1956

SYMPOSIUM ON MEDICINE AND WRITING

The Editing of a Modern Medical Textbook

Russell L. Cecil, M.D.

NEW YORK, N. Y.

At the outset of this article, it is necessary to draw a distinction between writing a medical textbook and editing such a treatise. In 1890 Sir William Osler wrote a classic textbook of medicine, so thoroughly satisfactory to both student and practitioner that for 40 odd years it had no serious competitors. It is amazing that even at the turn of the nineteenth century, a single physician should have had a knowledge of internal medicine so comprehensive and so accurate that he could cover the entire field with little or no collaboration. It is noteworthy, however, that when Osler, in his later years, set about the task of preparing a system of medicine in five volumes, he followed the example of earlier authorities such as Nothnagel and Allbutt and sought the assistance of outstanding medical colleagues who possessed special knowledge in medicine's various fields. This in a way was a kind of confession that when it came to the production of an encyclopedia of internal medicine, the undertaking was beyond the physical or intellectual capacity of one physician. It is rather strange that though this principle of multiple authorship was accepted as the right and proper method of producing a *system* of medicine, no one until comparatively recent times had thought of applying the same idea to the making of a modern single volume textbook. But after all, what is a medical textbook but a condensed system of medicine? It was with such a thought in mind that *Cecil's Textbook of Medicine* was planned in 1923 and carried through to actual production of the first edition in 1926. I had no difficulty in winning the enthusiastic support of R. W. Green, at that time the wise and farseeing editor-in-chief of the Saunders Publishing Company. Green at once realized that such a textbook would introduce a new note into the entire field of medical textbook writing, and from the start he contributed much sound advice and many valuable suggestions to the rather inexperienced young editor!

The first edition of "Cecil" received only a moderately warm welcome from the medical profession. The *Journal of the American Medical Association* gave it a favorable review and so did many other medical journals. However, the popularity of Osler's

textbook was so great that for a while the new competitor had rather rough sledding. In 1926, Osler had been dead six years, but his textbook was being carried on with revisions by Dr. Thomas McCrae, at that time Professor of Medicine at the Jefferson Medical College in Philadelphia. McCrae had been coeditor of Osler's five volume *System of Medicine* and was therefore the "natural selection" as successor to his former chief for the difficult assignment of revising the textbook.

The popularity of "Cecil" increased with each edition so that by 1940 it was being used as the standard textbook by many of the leading medical schools, and when the United States entered World War II, it was recommended by the War Department as a reference book for both Army and Navy medical corps.

The popularity of this book can be attributed to several factors:

1. It had multiple authorship. About 150 physicians contributed to the first edition, and the number has increased to 170 in the ninth edition, which was published in 1955. Just a short time before the first edition appeared, Frederick W. Price in Great Britain put out an excellent textbook of medicine along similar lines. Price was the editor and one of the contributors and had the collaboration of 25 additional contributors, all outstanding physicians in their particular fields. In his preface, Dr. Price made the following statement: "In order to secure greater uniformity of method and style, I have generally adopted the principle of allotting a whole section to each author or to two writing in collaboration instead of enlisting the services of a large number of writers."

2. Another factor that contributed largely to the success of my textbook was the high quality of the contributors. Nearly all of them were professors or associate professors in American or Canadian medical schools, and in nearly every instance the contributor was an authority on the subject about which he wrote. In the first edition a few mistakes were made in the selection of contributors when personal friendship entered into the picture. This was found to be an unfortunate error and was corrected in subsequent editions.

3. I think that another secret to the success of this textbook was having a large number of contributors, each one in most cases writing a comparatively short article. Here the technique varied from that employed by Dr. Price and certain American editors who have found it more practical to employ only a dozen or more contributors, each taking a whole section of the book. The great advantage of short assignments was the fact that it made the job less of a chore for each contributor. It is much easier to persuade a distinguished physician to write an article on coronary thrombosis, for example, than it would be to persuade him to write the whole section on cardiology. Furthermore, when contributors have written long articles, it is often difficult to get a thorough revision for each new edition of the book.

Within a comparatively short time after the appearance of *Cecil's Medicine*, the idea of multiple authorship for medical textbooks was being adopted in almost every field of medicine, including even the fundamental branches.

Coming now to the real topic of this article, I will discuss briefly some of the features that are essential to the editing of a modern medical textbook, presumably a book made up of articles by a considerable number of contributors.

First, a word should be said about the selection of the editor himself. The editor

should be an internist and should be closely identified with a first rate university medical college. If possible, he should have all three qualities necessary for a good author or editor: a sound knowledge of clinical medicine, an interest in teaching, and some familiarity with clinical research. It is interesting to note that in the case of my own book the first six editions were edited solely by the writer of this article except for the valuable assistance of Dr. Foster Kennedy, who acted as associate editor for the section on nervous diseases. With the seventh edition, published in 1947, the editor felt the need of more assistance and was fortunate in securing the help of Dr. Walsh McDermott, at that time Associate Professor of Medicine at the Cornell University Medical College. After the untimely death of Dr. Kennedy, Dr. Harold G. Wolff, Professor of Neurology at the Cornell Medical College, became associate editor for diseases of the nervous system. When the time came for publication of the eighth edition in 1951, I asked Dr. Robert F. Loeb, Bard Professor of Medicine at the College of Physicians and Surgeons of Columbia University, to act as coeditor, and Dr. Alexander B. Gutman, Professor of Medicine at Columbia, was invited to become an associate editor. By this time it had become necessary to have not only multiple authorship but multiple editorship in order to maintain the high standards of textbook quality. The same group of very capable editors assisted in the editing of the present ninth edition. I am quite sure that the textbook could not have maintained its present excellence without the assistance of these talented teachers and writers of medicine.

Next to the selection of the best possible group of editors comes the selection of the best possible group of contributors, and let me say again that I believe that a large group of contributors is preferable to a small group for the reasons stated previously. It is desirable to have the contributors well distributed over the country so that Western and Southern colleges are represented as well as the Eastern schools. In the selection of a contributor, it is well to find out something about his facility in writing. Many capable physicians and surgeons practice their art with the greatest skill but have difficulty in writing about it in clear, concise English. It is absolutely essential that each contributor be an expert in the field for which he has been chosen. Unless this rule is followed religiously, the whole object of multiple authorship is frustrated.

Another important part of the editor's job is to determine the amount of space that each contributor shall receive and to see to it that he keeps his article within the space assigned to him. It is surprising how difficult it is for many writers to keep an article down to a limited amount of space. Presumably, each man thinks his subject is the most important one in the book! The last volume of "Cecil and Loeb" consisted of 1687 pages, not including the index—truly a large and weighty volume and one you would not care to have dropped on your great toe! We editors spend a great deal of time in trying to discover ways and means of abbreviating the text. The book has now reached its absolute maximum size. Even 50 pages more of text would mean a two volume instead of a one volume book.

The most important function of the editor and his staff is the editing of the text. Naturally, there is a good deal of unevenness in medical writing, and the job of the editor is to iron out some of this unevenness. As a matter of fact, some of the articles

are so well written that they are published practically untouched. Others need much of the blue pencil. Incidentally, I have been amazed at the amount of editorial change one can make in an article of this kind without getting violent protest from the writer. By and large, physicians are an understanding and cooperative lot.

The editor must prevent too much overlapping. A certain amount is inevitable in a textbook of this kind, but it should be cut to the minimum because of the limitations of space. Closely related to overlapping is the matter of consistency in diagnostic and therapeutic recommendations. It would not be proper for one writer to recommend roentgen ray therapy for bursitis while another, later in the book, insisted that roentgen ray therapy was useless for the treatment of this condition. However, a certain amount of disagreement is permissible or even desirable. One writer on heart ailments might recommend digitoxin while another would prefer the digitalis leaf.

The bane of an editor's existence are typographical errors. I am told by our publishers that some 40 typographical errors are found in every new edition, in spite of the most careful reading and rereading of the text. Fortunately most of these are not significant and occur in the bibliography or in some other unimportant connection. Many of these errors are discovered by medical students, who take great satisfaction in calling them to the attention of the editor!

One of the functions of the editor is the arrangement of the chapters in proper sequence. The older textbooks usually placed the section on infectious diseases at the beginning of the book. This was followed by systemic disease of the various organs including diseases of the heart, liver, lungs, kidneys, and so forth. In earlier textbooks the section on nervous diseases was placed at the end of the book. This order, of course, was more or less arbitrary, and some recent editors have departed from this sequence. In my own book I kept infectious diseases in first place, opening with the viruses. Once this important topic was developed, a certain sequence of subjects was logical. For instance, the micrococcal infections should come together, and bacillary infections form another group. The arrangement of the text in any particular chapter should follow the standard pattern that has been used from time immemorial, beginning with definition and then, in sequence, morbid anatomy, pathology, physiology, etiology, symptoms, physical signs, diagnosis, prognosis, and treatment, both curative and preventive. Many of the chapters in "Cecil and Loeb" contain a paragraph on important historical data.

Much could be written about the important job of preparing an index for a book of this kind. In our ninth edition the index consumed almost 100 pages. This is considerable space for an index, but it is one part of the book where abbreviation is almost impossible. So many diseases have a number of synonyms, each of which must be cross-indexed. In the case of an important disease that occupies several pages of text, it is desirable to index under the main heading the various subdivisions such as pathology, symptoms, diagnosis, and treatment. However, when only a few hundred words have been written on some very rare disease, simply indexing the title is sufficient. In this way much desirable space can be saved. Comparatively few editors prepare their own indexes today. This is a difficult and time-consuming job and is probably more efficiently done by an expert on indexing.

MEDICAL TEXTBOOK WRITING

Much could be written about medical textbook writing, but first of all, it should be noted that no two medical writers have exactly the same style. A form of medical writing such as that employed by various scientific medical journals has been worked out by certain editors, which results in every article having practically the same rather stereotyped style. I am not sure that such conformity is desirable. On the other hand, there should not be too much unevenness in the style of a medical book, and there is danger of this happening when 150 odd writers contribute to the same volume.

I suppose the most important essential in a textbook article is that it bear the stamp of authority. In other words, the writer should have had a wide enough experience with the disease he is describing to know what he is talking about. We have found that the most difficult subjects to cover are certain rare tropical diseases. A writer who undertakes to describe kala-azar should have seen and treated many cases of this disease. Otherwise he simply copies the descriptions of some previous writer on tropical diseases and the reader gets no impression of the author's having had a personal acquaintance with the disease. There are also certain rare forms of organic disease of the central nervous system that require a very thoroughgoing knowledge on the part of the writer to make his article convincing.

Closely related to the stamp of authority is the badge of accuracy. It is possible, of course, to be thoroughly at home with a disease and still be guilty of minor inaccuracies such as dosage of drugs, references to literature, and so forth. Accuracy in a scientific article really has to do with the precise use of words. To state that a patient runs a temperature is not so accurate as to say that he has a fever.

The well written textbook article should contain no mistakes in grammar or syntax. Split infinitives and dangling participial and conditional clauses occur much too frequently in medical writing. On the whole, the best medical diction consists of comparatively short sentences. Long, complicated sentences, so popular with German writers, are not considered good form in the writing of scientific English.

Incidental to short sentences are conciseness and brevity of style. Many of the articles that have been submitted to us for the textbook have had to be cut because of verbosity. It is surprising how many words can be chiseled out of an article by an expert editor even though she may be a layman. I had such an expert at the time when I was editing the first edition. Miss Martha Taylor of Boston, though not a graduate in medicine, had had a fine New England education and she possessed a gift for abbreviating sentences. I shall always be very grateful to her for the help she gave me in the preparation of the first edition. Mrs. Natalie J. Hoyt has been of great help to us in the more recent editions. Mrs. Hoyt reads articles with a discerning eye and discovers not only violations of grammar but unnecessary verbosity in expressing ideas. Not only can many sentences be shortened but many unnecessary sentences can be completely deleted without in any way injuring the context. The problem of keeping a book of this kind down to one volume depends on cooperation from contributors and a sincere effort on their part to keep their contributions down to the number of words assigned to them by the editors. Of course, when important

new work comes out, such as happens in many fields every few years, certain articles will have to be lengthened. However, when this is done, it becomes necessary to shorten certain other articles on subjects that have lost some of their importance to the medical student.

The medical writer who possesses clarity of style has a gift of especial value. It is strange what a complicated method of expression many scientific men develop. Generalizations regarding medical writers are dangerous, but as a rule I have found that medical men write more clearly than surgeons. Furthermore, the professor of medicine is usually a better writer than the practitioner.

A nice point for editorial discretion comes up in respect to controversial material. Some controversial subjects have to be included; they are too important to be omitted. By and large, however, controversial material should be either eliminated entirely or discussed very briefly. After all, textbooks of medicine are written primarily for medical students. On the whole, it is the part of wisdom to feed medical students meat and bread rather than cakes and ale. Fads and fashions in medical treatment come and go, and new therapeutic measures should not be given much space or consideration until they have been pretty generally accepted by the medical profession.

A textbook of medicine must be written in a serious vein. A textbook article is not the place for jokes or humorous stories. In this respect textbook style differs from that of an article that has been prepared for a medical periodical where sometimes a little humor goes over very well indeed.

This discussion of medical writing would not be complete without some reference to the question of illustrations. The earlier textbooks of medicine had no illustrations other than temperature charts. Of the modern textbooks, Meakins was the first to make a feature of illustrations, some of them in colors. This feature made quite a hit with the medical students. However, in order to introduce numerous pictures, considerable text had to be sacrificed. Following the example of Meakins, we have introduced illustrations into our recent editions. The best ones are the roentgenograms and charts illustrating fever or some other clinical feature of the disease under discussion. In the last two editions, however, our editorial staff has found it necessary to delete most of the illustrations dealing with pathology in order to make room for necessary discussion. We reasoned that the student could get just as good or even better pathologic illustrations in his textbook of pathology.

Another recent innovation in textbook writing and textbook editing has been the inclusion of a large amount of physiology and biochemistry. This, of course, has been very helpful. In *Harrison's Textbook* nearly half the text is devoted to excellent discussions of the physiology of respiration, pain, and so forth. In "Cecil and Loeb" we have felt that including this newer physiology and biochemistry under each disease was preferable and space-saving.

In a previous article on this subject I expressed doubt as to whether a textbook of medicine would ever be attempted again by a single writer. Dr. Osler achieved it and produced the finest medical textbook ever written. However, Dr. Osler wrote his book in 1890, at a time when the writing of a textbook on internal medicine presented a much simpler task than it does today. Most textbooks of medicine, and probably of other special fields such as surgery and obstetrics, will be written and

edited by a group of men who are all experts in that particular field. By employing such a method, the medical student will get firsthand knowledge in respect to both diagnosis and treatment.

One of the never-ending problems that presents itself to the editor of a medical textbook is the matter of revisions. Most medical textbooks are revised every three or four years, and that has been the policy of the writer. During the last half century, medical knowledge has progressed at such an amazing pace that the average medical textbook is out of date in four years. Even on the four year basis, important advances in medical knowledge are sometimes announced a few months after a new edition of the textbook has been published. In order to keep the book up to date, it then becomes necessary to insert a revised page in the text at the first reprinting. In this way a textbook can be kept fairly authentic until the next edition is published. Most contributors are very cooperative in revising their articles for new editions. Each writer seems to take a personal pride in keeping his particular section of the book abreast of the times.

Successful American textbooks are often translated into one or more foreign languages. Translations into Spanish are particularly popular because of the large Spanish-speaking population in South America. *Cecil and Loeb's Textbook of Medicine* has been translated into Spanish, Portuguese, Italian, and Chinese, and there are rumors of still other translations to come.

Interesting anecdotes grow up around a textbook, and "Cecil" is no exception. One of the best is the story of a young American physician who became a prisoner in Japan during World War II. Because he spoke fluent Japanese, he was suspected of being a spy and was confined to a dungeon without books or companions. A kindly Japanese physician finally brought him a copy of *Cecil's Textbook of Medicine*, and during the succeeding months of his imprisonment, he possessed no other reading matter. He was thus enabled to memorize a large part of the textbook word for word! Another young physician, flying by night to the West coast to take his board examinations, was shocked out of his sleep by having this ponderous tome fall from the parcel rack onto his unprotected abdomen. He absorbed so much medicine from this mighty blow that he passed his examinations with flying colors!

In rereading this article, I seem to have waxed rather egotistical in certain parts of the text. For this I apologize and can only say in defense that it would be difficult to write a treatise of this kind without giving it a few personal touches.

During the coming years, other textbooks similar to mine will be written, and I hope this short discussion will be of some help to future editors.

Plain Talk and Clear Writing

Morris Fishbein, M.D.

FORMERLY EDITOR, JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION;
CONTRIBUTING EDITOR, POSTGRADUATE MEDICINE, AND CHIEF EDITOR, EXCERPTA MEDICA
CHICAGO, ILL.

"If the words that a speaker uses either do not mean the same thing to his listener as they mean to him, or, more simply, do not mean anything to the listener at all, there is either misunderstanding or no understanding." This quotation, from a recent address by Lord Radcliffe to the Royal Society of Medicine, is my topic. On the wall of the study in which I write is a portrait of one of my great friends, Henry L. Mencken, who died yesterday. He sent me the picture in 1921 when I was writing for the *American Mercury*, which he had founded. The inscription under the portrait reads: "To the philological pathologist, Morris Fishbein, from the pathological philologian, H. L. Mencken." Of all the writers I have known, scientific or literary, professional or amateur, he was most clear and incisive and direct in his expressions. Here are a few quotations, the first from an essay on *Education:*

> My sentences are short and plainly constructed: I resolutely cultivate the most direct manner of statement; my vocabulary is deliberately composed of the words of every day.

Here is how he anticipated psychosomatic medicine in an essay written in 1922:

> The science of psychological pathology is still in its infancy. In all its literature in three languages, I can't find a line about the permanent ill effects of acute emotional diseases—say, for example, love affairs. The common assumption of the world is that when a love affair is over it is over—that nothing remains behind. This is probably grossly untrue. It is my belief that every such experience leaves scars upon my psyche, and that they are quite as plain and quite as dangerous as the scars left on the neck by a carbuncle.

The examples I have cited establish the principle that I would emphasize. In my book on *Medical Writing* a chapter is devoted to style. "Whenever a writer feels an impulse to perpetrate a piece of exceptionally fancy writing, he should obey it, but should delete what he has written before sending the manuscript to press." Seldom need scientific writing employ other than simple terms to express an idea or to state a fact. Verbosity is a blemish that makes reading tedious and wastes space. Long involved ungrammatical sentences make the sequence of ideas difficult or impossible to follow.

Every professional writer keeps easily available certain works of reference to aid him in achieving clarity and accuracy in saying what he wishes to convey. Just as any mechanic may require a hammer, a saw, a chisel, a screw driver, and a pliers, a writer needs ready to his hand a dictionary, a thesaurus, and a book of quotations. I keep in addition a one volume Shakespeare, a King James version of the Bible, Fowler's *Modern English Usage*, *The Complete Plain Words* by Sir Ernest Gowers, and a number of anthologies of medical classics.

The best advice for developing a good style is devoted reading of certain classics.

Sir William Osler recommended that the doctor keep at his bedside 10 works for reading and rereading.

Osler wrote: "A liberal education may be had at a very slight cost of time and money. Well filled though the day be with appointed tasks, to make the best possible use of your one or of your ten talents, rest not satisfied with this professional training, but try to get the education, if not of a scholar, at least of a gentleman. Before going to sleep read for half an hour, and in the morning have a book open on your dressing table." Here is his list of 10 books:

1. Old and New Testament
2. Shakespeare
3. Montaigne
4. Plutarch's *Lives*
5. Marcus Aurelius
6. Epictetus
7. Browne's *Religio Medici*
8. *Don Quixote* by Cervantes
9. Emerson's *Essays*
10. Oliver Wendell Holmes' *Breakfast Table Series*

In the prologue to his fascinating compilation of examples of "gobbledygook," a term used to describe "officialese," Gowers quotes Lord Macaulay: "the first law of writing, that law to which all other laws are subordinate, is this: that the words employed should be such as to convey to the reader the meaning of the writer." Later he says:

> The basic fault of present-day writing is a tendency to say what one has to say in as complicated a way as possible. Instead of being simple, terse and direct, it is stilted, long-winded and circumlocutory; instead of choosing the simple word it prefers the unusual; instead of the plain phrase the cliche.

Sir Ernest Gowers is a son of the famous Gowers who charted the areas of the brain. Another word for "gobbledygook" is "puddery," the word "pudder" coming from King Lear. Gowers has noticed the extent to which this practice has entered medicine. He says:

> Puddery seems to be regrettably increasing in medicine. In my lifetime I have seen the *mad-doctor* pass through the chrysalis of *alienist* into the butterfly of *psychiatrist*. This is perhaps excusable, but why have *walking cases* suddenly become *ambulants*? Some seventy years ago a promising young neurologist made a discovery that necessitated the addition of a new word to the English vocabulary. He insisted that this should be *knee-jerk*, and *knee-jerk* it has remained in spite of the efforts of *patellar reflex* to dislodge it. He was my father; so perhaps I have inherited a prejudice in favour of home-made words.

Among the most capable of medical writers in the United States whose names occur to me I include Harvey Cushing, James B. Herrick, William S. Thayer, Logan Clendening, Oliver Wendell Holmes, William Osler, S. Weir Mitchell, DaCosta, Walter B. Cannon, John Shaw Billings, and Hans Zinsser; in Great Britain, Stephen Paget, Humphrey Rolleston, Frangcon Roberts, Sir Heneage Ogilvie, James Mackenzie, Lord Horder, Berkeley Moynihan. I could cite many examples from their writings and I recommend frequent reading of their compositions. As an exercise

toward achieving clarity, I also recommend selection of paragraphs from the pages of any of our current publications which may then be recast and rephrased in improved diction and form. I submit examples taken at random:

From an article in the *Mississippi Valley Medical Journal*, January 1956:

You should not make this decision hastily but should carefully consider it over a period of several months.

Do not decide hastily; consider carefully for months.

From *Annals of Surgery*, January 1956:

The most simple and the most easily effected type of pedicled flap is the simple local flap, transplanted from the area adjacent to the wound, for only one operation usually is required, and postoperative immobilization may be produced by means of a leg cast.

The simple local flap is the type with a pedicle most easily done; it may be transplanted from the area near the wound. Usually only one operation is required. Immobilization after the operation may be produced by a cast on the leg.

From the *Journal of the American Medical Association*, Jan. 28, 1956:

While the salvation of the baby is important, it should be remembered that its safety in a given case is jeopardized by continued intrauterine existence, as well as by the effect of prematurity on its extrauterine survival, and that at about the 28th week it has relatively little chance of survival in either case.

The saving of the baby is important but its safety is jeopardized by remaining in the uterus, or by living outside the uterus when it is born prematurely. In either case the baby has slight chance of survival at the 28th week of fetal life.

JARGON

One of the most common faults of medical writing is the use of jargon. Under this word Fowler includes talk that is considered both ugly-sounding and hard to understand: applied especially to (1) the sectional vocabulary of a science, art, class, sect, trade, or profession, full of technical terms; (2) hybrid speech of different languages; (3) the use of long words, circumlocution, and other clumsiness. Consider these examples:

Surgical operation is an emergency in strangulation obstruction. . . .

She needed help for all routine procedures, was a very finicky eater, and never moved by herself except to toilet.

Once it was realized that in an industrial civilization unnecessarily crippled hands constituted a tremendous economic and personal loss, surgery of the hand was removed from the category of minor surgery and placed alongside compound fractures where it belonged.

Try to improve these examples with a view to securing clarity.

The formula for acquiring a good literary style has two ingredients: reading and practice. A good style flows from the pen with the rhythm of respiration. Clauses and phrases of even, reasonably brief length are clear and emphatic. They are convincing and they are respected.

On Writing a History of Medicine

Douglas Guthrie, M.D., F.R.C.S.

LECTURER ON HISTORY OF MEDICINE, UNIVERSITY OF EDINBURGH

EDINBURGH, SCOTLAND

Having accepted the editor's kind invitation to contribute to this Symposium my views on the problem of writing medical history, I am now faced with the more difficult problem of writing on the writing of medical history. Considerable self-examination was essential before I could answer the questions of the why and the how in medical historiography. Whether or not my introspection has been successful, I leave the reader to judge.

THE NEED FOR MEDICAL HISTORY

I am often asked *why* we should study the history of medicine—an interesting occupation for senile doctors, a quaint and curious story of bygone days, a side line for the antiquarian, only that and nothing more.

"And why," continues the critic, "why should we impose such a study upon the overworked medical student?"

To such enquirers I reply that medical history is an essential basis and background to medical practice. Not only does it provide a stimulus to those who are carrying on the great tradition that is their heritage, but it supplies a cultural and ethical foundation to modern medicine. It gives us ideals to follow, inspiration for our work, hope for the future. Many read history for information only, out of sheer interest, but whatever the motive, the reader is influenced by what he reads. History widens the horizon, it links medicine with other branches of knowledge, and, above all, it counteracts the present-day tendency of medicine to become more and more specialized, more and more technical. Written history is the main source of information; knowledge is best acquired and interest is best fostered by reading, rather than by lectures. Indeed, the lecture ought to serve merely as a stimulus and as a guide to the individual studies of the reader. Long courses of lectures on the history of medicine are of little value to the average student, who requires merely an outline on the subject that he can amplify for himself by reading. Six or eight lectures at most will satisfy all needs, and although, in so short a series, the whole ground cannot be covered, the series of cross sections should be presented in such a manner as to leave the student with the desire to know more, and to search the literature for himself.

HISTORY IN THE MEDICAL CURRICULUM

While I regard history as an essential component of medical education, I do not think it should ever become "just another special branch" of medicine. Indeed, history, in medicine, should never be a specialty; it ought to be, rather, an integral part of each department of medical knowledge, permeating all the branches, and helping to bring medicine into line with all other fields of knowledge that contribute to the welfare and happiness of mankind.

Every teacher of medicine, whatever be his special affinity, ought to direct the students' attention to the lessons of history, while he unfolds his discipline in its latest phases. He may even give, with advantage, a special lecture, perhaps an introductory lecture, on the early history of his subject, with due references to the pioneers. It is also highly desirable that the student should be acquainted with the history of his own medical school. In Edinburgh, we can conduct a medical pilgrimage around such ancient shrines as still exist, and we always include Greyfriar's Churchyard in the tour. There is much to be learned from the graves of the great. For some years I have been invited by a number of my colleagues to address their students each term, and I have always regarded those lectures as more useful and significant than the lectures that constitute my short annual course on the history of medicine in general. Whatever method be adopted, history ought to be administered to medical students in small and well spaced doses.

Another important means of teaching medical history is use of exhibits of early books, manuscripts, instruments, photographs, etc. arranged in prominent showcases so that even he who runs from classroom to classroom may observe and read. Such visual education awakens interest and suggests further lines of inquiry and reading.

CHANGING VIEWS OF HISTORY

We have considered why history should be studied as part of medicine and how it may be taught, but we have not yet answered the question, in my own case a very pertinent one, "Why write another history of medicine? Surely many histories are already available, and in any case, the facts of history must surely remain unchanged." My answer is that there is ample scope and need for more histories of medicine.

History is never static. While it is true that the hard facts continue as unaltered records, the attitude toward those facts and the interpretation of the facts undergo changes with each succeeding generation. History does not, and cannot, repeat itself, despite the oft-quoted phrase. It becomes a different story, even within an average lifetime. The idea of the "second chance" is a complete delusion, though it has been exploited by many authors. If it were possible for each of us to have a second chance to relive this life, would the result be better or worse? Who has not asked himself this question? Nevertheless it is a foolish fantasy, because in the meantime, conditions of life and of environment have so entirely changed that the new life could not possibly follow the same pattern as the old one. In the same way, the appeal of history undergoes changes as each new chapter is added to the agelong tale. From this, it follows that a new version of history in general, and of the history of medicine in particular, will be in constant demand as time goes on. We find ourselves continually revising our views and reshaping our reactions to meet each new situation. The retelling of the old tale in the language of today and to suit the needs of modern readers is just as essential in history as it is in any other aspect of medicine.

MODERN MEDICAL HISTORY

In speaking of history up to this point I have had in mind *early* history. Although it may be argued that the events of yesterday have already become history, a period

of time, even many years, must elapse before those events come within the field of the historian. Of course there have been many excellent books and articles on "The past fifty years in medicine" or some such topic. Nevertheless, I submit that history of so modern a date is in a class by itself, and is best taught and written, not by the medical historian, but by the expert in the subject under review. Historical facts do not at once fall into their correct perspective. As Bishop Mandell Creighton said, "The lessons of history are best learned in periods which do not challenge direct comparisons with the present. We are calmer and more impartial when the conditions of the problem are somewhat remote." Furthermore, as is well known, a new remedy does not at once assume its permanent place in therapeutics. In time it may be improved, or superseded, or even discarded. Medical history takes at least half a century to mature, and to write of modern history, as of prehistory, may be guesser's ground.

THE ALPHA AND OMEGA OF HISTORIOGRAPHY

Now let us deal with the technique of the medical historian—how he approaches the task, and how he begins and how he ends the story that he sets out to tell. He must first delineate the field with which he proposes to deal; his first duty is the collection and analysis of the recorded facts. Historical observation is always indirect; the information is always secondhand. The original records that form the quarry of the historian have been made by others, usually in writing, although before the invention of writing, they consisted of tools, implements, bones, and other relics—the source books of unwritten history. Even the written records have been copied and recopied, and many of the originals no longer exist. Still, the mass of available material is enormous, and the historian's task is one of choice and selection rather than one of mere collection.

Moreover, the difficulty is increased by the constant expansion of history. History is expanding at both ends, as well as in the middle. More and more records of the activities of mankind in the past are becoming available. Meanwhile, as the years pass, the events of each decade, of each year, and even of each day are becoming historical. Even prehistory, which has often been regarded as a mere field for speculation, is yearly yielding up its ancient secrets and adding to the mass of facts available to the inquiring historian.

The medical historian will do well to pay special attention to the prehistory of medicine and to primitive medicine and medical folklore, the most ancient aspects of the healing art, which still survive and even flourish today, in spite of modern advances. Man's greatest discoveries—the use of tools, cooking, agriculture, etc.—were made in prehistoric times, long before the invention of writing. A study of the primitive mind may furnish the key to some of the problems of the present. The supernatural still has a place in medicine.

Collecting his data, indexing the essential facts, noting the trends and fashions that have affected medical practice, reading biographies of the pioneers, studying the growth of medical education, the development of hospitals and nursing, and the classic books, the historiographer enters upon his task. This period of collecting may extend over a number of years, but it should not be too long. In George Eliot's

remarkable novel *Middlemarch*, which Stephen Paget urged all his medical students to read, there is the character of Casaubon, engaged in the lifework of writing a "key to all the mythologies." He piles up data upon data until he is engulfed in the great mass of material regarding which no conclusion has been reached. He ends as he began, a mere collector.

> Nothing so difficult as a beginning
> In poesy, unless perhaps the end.

So wrote Byron, and what is true of poesy applies with equal force to history. The beginning is hard enough, but one must know also where and when to stop. The end of the stage of collection is only the beginning of the real enterprise. After collection comes selection, together with analysis; finally, the time arrives for presentation, in writing. Sifting the mass, discarding here, and adding there, the historian at length designs the pattern of his writing.

Apart from notes or a skeleton or framework of the book, with perhaps chapter headings and the like, he has not yet put pen to paper. Leaving the scientific period of his task he now enters the phase that is, rather, an art.

SCIENCE VERSUS ART IN THE WRITING OF HISTORY

Half a century ago, history passed through a period of criticism and revaluation such as we have witnessed much more recently in medicine. Certain distinguished historians of the last century told us that history should be regarded as "a science, no less and no more," and that it was not a branch of literature. To clothe the story in an acceptable literary dress was no part of the historian's job.

After much heated argument, a more common-sense view has been reached and is now generally accepted. It would have been pitiable if history had yielded then to the temptation of becoming a specialized study, for scholars only. The study of the past can never be the monopoly of a select group. Amateur historians do much valuable work, but above all in history, as in medicine too, there is great need for interpreters who can make available for the ordinary intelligent man the work of the specialist. This is indeed a most useful art. Even in medicine, now so highly specialized and fragmented, and so "scientific," it is becoming clearer every day that science has its limitations, and that many problems lie beyond the bounds of the most advanced dreams of scientific endeavor.

History, then, is both science and art. The collection of data is science; the analysis and presentation of history based on the data is art.

The facts themselves are of undoubted value, and a mere chronology of events has its uses. But how dry and unreal are dates of kings and battles, which gave such headaches to the schoolboys of a generation ago. Dr. Trevelyan has shown very clearly how much more important are the lives of the people than are the doings of their rulers. He has written a "Social History" which he defines as "history with the politics left out." Nothing is lost and much is gained by this plan. So also in medical history, the writer should use his art in bringing medicine into line with daily life; the patient then enters the picture; his attitude toward the doctor, his food and clothing and housing, as well as his diseases, all are to be

studied, as the scroll of past records is unrolled. It is indeed fortunate that history has escaped from the bondage of science and still talks the language of the ordinary man. But can history assist medicine to achieve a similar position of freedom? This may be possible, although the medical historiographer who works with this end in view is faced with a formidable task.

MAKING HISTORY INTO LITERATURE

A history may be defined as "a critical review of past events in the light of present-day knowledge." Above all, the work should be critical and explanatory. The day of scientific history, if it ever really existed, is over, and although perhaps the history of science may remain "scientific," the history of medicine, like the practice of medicine, must ever be an art, and a branch of literature. The exposition and commentary, so essential if a history is to be something more than a dictionary of dates or a bundle of biographies, are the major portion of the work, and, of course, the difficult part to write. A mere record is not a history.

Robert Louis Stevenson wrote of Dr. John Brown, the author of the immortal tale "Rab and His Friends":

> Ye didnae fash yoursel' to think,
> Ye stapped your pen into the ink,
> An' there was Rab!

It is doubtful if the good doctor really found his literary work so easy.

For most of us it is a toilsome business, requiring much revisal and many corrections. Numerous are the sources of error, and the ship of history requires careful handling as it is steered through the stormy seas. Controversies are many, numerous are the problems. Was Hippocrates real? Was Paracelsus a charlatan? What was the effect of Christianity on medicine? Who was the true discoverer of anesthesia? Questions such as these are scattered throughout history, and the historian must face and answer them, if he is to fulfill his true function. Few of his readers are experts; they therefore demand guidance in the solution of dubious matters. This is right and proper, but sometimes the historian propounds an extreme view, and he may even revel in the dethronement of a great pioneer. This kind of historical analysis, under the ugly name of "debunking," has become very popular, though it really is a mean trick to play on our ancestors. Of course they had their faults, but why lay such stress on this negative side of their lives? The converse attitude, that of "whitewashing" some historical personage who has usually been regarded as a villain, is not so common a practice. Unless he is very sure of his ground, the writer of history should avoid extreme views in either direction. Sensational matter, written to shock some and to surprise others, or to form a kind of historical "thriller," ought to have no place in a history of medicine.

A greater difficulty, and, indeed, the main difficulty that confronts every historian, is that of making his story run smoothly, so as to assume the form of a readable narrative.

UNHISTORIC ACTS AND UNRECORDED FACTS

The historiographer's first duty is to tell the tale in an attractive manner. A bare

statement of facts and events makes a lamentably dull book. Good history should be literary and, at the same time, human. Impersonal history is no history at all; without biography it becomes very dry indeed.

At first, the writer may be tempted to exaggerate the importance of great discoveries and to lay great stress on the lives of famous men. It should be remembered that this is only one aspect of history, a survey of the peaks and not of the valleys, a study of milestones rather than of the miles between. Of course the trail of the pioneers is a noble theme, but it leaves untold the more significant unhistoric acts and unrecorded facts. The discoveries may be the bricks, but the untold tale is the cement that binds them together. "The growing good of the world is partly dependent on unhistoric acts," wrote George Eliot in the last sentence of *Middlemarch*, and two centuries earlier, Sir Thomas Browne reflected that there might be "more remarkable persons forgot, than any that stood remembered in the known account of time."

The lives and deeds of many unknown practitioners form the material out of which the history of medicine is fashioned. These were the men who made possible the work of the famous discoverers.

No definite pattern of progress may be discerned in history, and no one now refers to an imagined steady growth of goodness. The temperature chart of history shows violent oscillations, which seem to have escaped the notice of complacent Victorians. Indeed, the word progress, in history, denotes only a movement, not always a betterment by any means.

THE VALUE OF REVIEWS

The publication of a book and, most of all, of a history does not bring to an end the responsibility of the author. There are still reviews to be faced and criticisms to be answered. There may even be the possibility of future editions and of translations into other languages.

Reviews are widely read, for various reasons. Some read a review to save themselves the trouble of reading the book, others to ascertain whether the book is worth reading or even worth buying. Accordingly a review ought not to be simply a criticism of defects and errors together with a statement of how the reviewer himself would have written the book. A review ought rather to give a brief synopsis of the contents and construction of the work, of its interest and readability, and especially of whether it supplies new knowledge or approaches the existing knowledge from a new point of view that brings it into line with modern thought. In a history, the reviewer will look for the change of view regarding events long since fixed in time and place.

My history of medicine had the good fortune (I never learned why) to be reviewed in the *Observer* by Mr. George Bernard Shaw. Mr. Shaw followed none of the usual rules of reviewing. He simply wrote an entertaining essay, using the book as a starting point, and dealing with the fallacies of antisepsis and the follies of vaccination, in his own inimitable style. It was not surprising (or was it?) that the history became a "best seller." Many bought the book simply because G.B.S. had reviewed it; they had no special interest in the subject and none, needless to say, in the author.

Strangely enough, the reviewing of books is a fairly recent trend in literature. It

was unknown in ancient and medieval times and became prominent only at the beginning of the last century; under the stimulus of the *Edinburgh Review* and the *Quarterly Review* and similar publications, sponsored by the leading literary men of that time. Now it has become an essential stage in the career of every book, of whatever merit.

HINTS FOR HISTORIOGRAPHERS

Having strayed a little way from the main object of this paper, let me now set down a few conclusions for the benefit and guidance of future writers of a medical history. It would be presumptuous of me to lay down rules, and in any case there can be no rules for the pursuance of an art. All that I can do is to offer a few remarks that may save others from errors of which I am all too conscious in my own work.

1. Do not lay too much stress on famous men and great discoveries. Never forget the part played by the unknown doctor and the still more obscure patient. The histories of epidemics, of special branches of medicine and surgery, of drugs and instruments, of hospitals, of medical schools, of early classic books, and of many other aspects of the wide field should enter the picture and provide material quite as significant as the occasional outbursts of genius.

2. Although a chronologic order is essential, one need not be a slave to dates. The average student dislikes history when it is portrayed in the battles-and-reigns manner of former school days. Nevertheless, the historian should imagine himself to be living during the period under review. He will then be less likely to fall into the error of criticizing past events as though they were happening in the environment of the present day. If the truth were known, our forebears were often much wiser than we are, though their advantages were infinitely fewer than ours.

3. Cultivate a style of writing such as will make your story come to life. Take as your models some of the masters; for example, Sir William Osler, whose charming historical essays are such a joy to read. The appreciation of good literature comes to a child at an earlier age than most of us imagine. Oliver Wendell Holmes envied the boy or girl who had "tumbled about in a library," though today the remark has lost its point, since few homes possess libraries. During my own early years, in a Scottish "manse," I was obliged to commit to memory many chapters of the Bible. These I can still recollect, and I know now that they formed the best possible introduction to literature and to history, as, indeed, to the whole business of living happily. It was irksome at the time, but of lifelong value.

4. Verify all your references, from originals if possible. Guide the reader to the sources and give chapter and verse so that he may pursue the quest for himself, and roam even further than you.

Remember to link medical history, at each period, with the history of national and social events. The tale needs to be placed in its own setting, against the contemporary background. Epidemics had a profound effect on many nations. The laws governing medical education and practice and the attitude of the public toward the medical profession naturally influenced the march of medicine, as also did the World Wars of our own time. Readers of medical history should be led to associate it with their general historical knowledge; history, medicine, and literature are the components of every work on the history of medicine.

5. A good index is indispensable, and illustrations add to the attraction and value of any volume. "What is the use of a book," said Alice in Wonderland, "without pictures or conversations?"

The pictures need not all be portraits; indeed, portraits of eminent persons are familiar enough. A physician teaching, or a surgeon operating, is better than any posed portrait, and shows the fashions of the period. Every illustration should tell its own story—Charles II "touching" for king's evil, Leeuwenhoek's microscope, an operation in Lister's day are examples.

As for the index, it should be as complete as possible since it will often be the first part of the book to be consulted.

MEDICAL HISTORIES OF THE FUTURE

Will the history of medicine that someone will write in another 50 years follow the pattern of its predecessors? It is to be hoped that the single volume book will remain in demand, as it seems unlikely that the student of the future will have the time to digest the larger and more comprehensive works, which, of course, will be valuable as reference tools.

Perhaps some other means of recording events, such as microfilms, television, museums, and the like, will take the place of printed books, at least to some extent. It is idle to speculate on what may happen. Certain it is that the study of the history of medicine will no longer be focused on Europe alone, so long regarded as "Christendom." Already the center of activity has swung toward America. For years, medical history has had an accredited position in the medical schools of the United States, in strange contrast to the British schools, which have neglected the subject for the most part. Moreover, medical education, even in the countries of Latin America, provides for the teaching of medical history at almost every university. South American republics are already conscious of their own contributions to medicine, and there are excellent historical works on Brazilian, Cuban, Venezuelan, and Peruvian medicine. Many of those works appear to have been sponsored by the health departments of their various governments, an encouraging sign of the times.

There is great need for more medical historians, especially in Britain. The field is wide and unexplored. Local medical history is hardly noticed in the numerous works on British topography; the medical folklore of other countries has been more fully studied. America has accorded far greater honor to the pioneers of horse-and-buggy days than Britain has to her pioneers of general practice. Australia, however, has set a good example by the publication of many papers describing the medical work of the early settlers; indeed, the time is now ripe for a complete history of medicine in Australia, which would be valuable and stimulating.

So let us have more and more contributions to the history of medicine, whether as short articles or on a larger scale. By this means, we may have an opportunity of viewing the past history of medicine in each country and, as so many people are interested in history, of drawing the nations together by the fascinating story of each other's heritages. As has been proved time and again, without a knowledge of the past, we are ill equipped to face the future.

The Art of Communication

Joseph Garland, M.D.

EDITOR, NEW ENGLAND JOURNAL OF MEDICINE

BOSTON, MASS.

Once upon a time, according to a widely recognized and highly respected source of information, all men were of one speech and were clearly understood, each by the other. The advantages of this easy communicability are obvious; its disadvantages are more obscure, but apparently the opportunities for coordinated action that resulted from it led to a series of abuses. The highest tribunal known to man acted with speed and authority and dismantled the project that had been started, by the simple method of destroying the means of communication.

Inadequate communication and misunderstanding of meanings have been man's fate ever since, all his efforts at the meeting of minds and the exchange of clear ideas being subjected to destructive, centrifugal forces. Groups pursuing the same ideas have tended to isolate themselves linguistically, just as tribes separated by the barest geographic barriers have developed their own dialects. Villages in the three Yorkshire Ridings may have their own idioms and accents; the inhabitants of the lone prairies of New Jersey speak in terms almost unintelligible to the upland farmers in the rocky hills of New England.

The development of language barriers has become particularly pernicious among cultural and scientific groups, where it has been fostered almost, it seems, as a protective mechanism. Nevertheless, in spite of the natural difficulties that have arisen and the artificial obstacles that have been thrown in its way, the urge to communicate has persisted.

In the beginning was the Word, according to St. John, but both before and after this beginning, augmenting and supplementing it, communication has also taken place through various signs; through burning bushes and pillars of smoke by day and of fire by night, by examples and gestures and facial expressions. And the Word itself has been engraved on tablets and chiseled in stone and flung down from mountains; it has been painted on parchment and traced on papyrus and finally sent endlessly over wires and through the agitated atmosphere until the most patient among us can sometimes bear it no longer.

In the perpetration of this plethora of verbal transmission, this polysyllabic prolificity of communication, the profession of medicine has been no silent partner. There are reasons for this. The notion of healing and of health is always close to the upper levels of consciousness in most persons; as many devious paths of progress have been explored and publicized in medicine as in any branch of learning, and his personal revelations to his colleagues have been the doctor's only legitimate means of advertisement, except through the performance of good works for others to proclaim. Small wonder that writing has had high priority among his apparent obligations.

This concern of medicine with literature is of ancient origin. It is found in the cuneiform tablets of Sumeria, inscribed a thousand years before the Code of Ham-

murabi established rules for medical practice in Babylonia. It has been carried on through the Egyptian papyri and in the priestly writings of the Persian Zend-Avesta, through the Hippocratic Collection and the 400 authoritarian books of Galen, through the Byzantine Copyists and the Nestorians, by the Moslems and by the monks with their patient transcriptions, students content with their pensive citadels.

The Renaissance started medical communication on a new course, with holds emptied of their Galenic ballast, ready to receive a fresh cargo. It was not long in coming. Vesalius produced in 1543 the world's greatest book on anatomy, in the same year that the older physician, Copernicus, put forward some enlightened theories on the revolutions of various heavenly bodies. Forty-two years later Paré retraced his *Journeys in Diverse Places* to the discomfiture of the more learned if less receptive Gourmelen, and established some principles that introduced the elements of science to what had been a side line to haircutting. Then came Harvey and Withering and Jenner, with three more small books that punctuated the writings of the next two centuries like exclamation points, and modern medicine with its endless stream of communication was but a short distance away.

Periodical medical literature, the argosy of discovery in this branch of science, is a relatively recent product of the Age of Reason, the medical journal as an agent of communication apparently having come into existence in Paris in 1679. In that year Nicolas de Blegny began the publication of *Nouvelles découvertes sur toutes les parties de la médicine*, which became *Zodiacus Medicus* in the following year, and whose short life ended in 1683. Its appearance was the signal for a small explosion of similar ventures—in Holland, in Germany, and in England—until finally the present world output of perhaps ten thousand publications devoted to medicine and its allied sciences was reached.

The first medical journal in the New World had its origin, fittingly enough, in Mexico City: This was *Mercurio volante*, which came into being on Oct. 17, 1772, and appeared at weekly intervals until February of the following year, when it expired after 16 issues had appeared. We in New England think of the *Medical Papers Communicated to the Massachusetts Medical Society, to which are subjoined extracts from various authors, containing some of the improvements which have lately been made in physic and surgery*, as one of the earliest ventures into periodical medical literature in the English-speaking part of the Western hemisphere. Amounting practically to yearbooks, they were published at long intervals from 1790 until 1914. The first bona fide journal is supposed to have been New York's *Medical Repository*, which pursued its sober course from 1797 until 1824.

The *New England Journal of Medicine and Surgery and the Collateral Branches of Science, Conducted by a Number of Physicians*, appeared in Boston as a quarterly in January, 1812. In 1828 its owners purchased the weekly *Boston Medical Intelligencer*, which had been in regular publication since 1823, and the two continued as the weekly *Boston Medical and Surgical Journal* until 1928, when it reverted almost to its original title and has remained constant as the *New England Journal of Medicine*.

So much for a sampling of the channels through which modern medical literature has developed. As far as its effectiveness is concerned, I fancy—and perhaps it is only a fancy—that clarity in communication has depended somewhat on the me-

chanical ease with which the original composition is recorded. Paleolithic man, chipping away at his masterpieces on a sheet of bonded granite, used no unnecessary symbols on which to expend his time and energy, and the same may be said of the Sumerian amanuensis gouging out his wedges in a matrix of wet clay. A quill pen requiring the frequent offices of a penknife allowed the writer time for contemplation —more contemplation than its steel successor permitted, but something analogous to the opportunities for deliberation provided by a soft lead pencil, frequently sharpened. As ease in the production of words has improved, the practical necessity for selecting them has diminished. The fountain pen contributed still further to the deterioration of prose composition, until finally the whole temple totters, undermined by a torrent of words dictated but not read!

Whereas time—or the want of it—has increased the quantity of medical composition, it has on this basis done little to improve its quality. The following example of efflorescent turgidity was filched from a manuscript submitted some time ago to the *New England Journal of Medicine;* the remainder of the effort was born to blush unseen:

> Sooner or later some episode of infection or unusual physical strain will pry, like Pandora, the lid from Epimetheus's jar, and successive circulatory evils will befall the floundering hull as Charon punts it into the sure contents of the Styx. Arteritis, aneurysms, bacterial vascular infections, myocarditis, and embolization cause cardiovascular reserve to flutter; then the Bird of Time is on the Wing.

This is an extreme example of fancy's flight; compare it with the following simple statement from Dr. Withering's carefully groomed goose quill:

> The use of the Foxglove is getting abroad, and it is better the world should derive some instruction, however imperfect, from my experience, than that the lives of men should be hazarded by its unguarded exhibition, or that a medicine of so much efficacy should be condemned and rejected as dangerous and unmanageable.

As was stated in this journal last October by no less an authority than Henry E. Sigerist,[1] the English language is ideally suited for the development of thought in short sentences that fit together like glass bricks in the building of a house. This does not mean that long sentences are impossible, but they must be constructed with more thought than the Dictaphone usually permits. The above quotation from *An Account of the Foxglove* consists of a single brimful sentence of 53 words.

Edward Jenner in his own medical classic did as well, if not better, when he stated his entire case in a single-sentence paragraph of 65 words:

> Morbid matter of various kinds, when absorbed into the system, may produce effects in some degree similar; but what renders the cowpox virus so extremely similar, is, that the person who has been thus effected is for ever after secure from the infection of the Small Pox; neither exposure to the variolous effluvia, nor the insertion of the matter into the skin, producing this distemper.

Although medical science has so broadened that a prodigiously greater field is now available for literary tillage than ever before, it is, in the sense of literary and scientific appropriateness, more strictly limited than formerly. Rare indeed is it to find today titles with the rich variety of those that were presented in early issues of the *New England Journal of Medicine and Surgery*, such as: "Description of a Bank for

Alpine Plants," "Description of an Elk," "Remarks on the Importance of Inland Navigation from Boston, by the Middlesex Canal and Merrimack River," and "Strangulated Phrenic Hernia in a Horse."

The purpose of the scientific paper is primarily to add to the knowledge of the subject, not simply to restate information that can be found elsewhere. It is to present new material or clarify the old or to bring up to date the progress that has been made in a given field. Such a paper may be based on observation alone or on experimentation and observation. It may describe a new instrument or a new method, or the action of a new drug, or it may report a rare case, but it must be instructive to a majority of its readers.

Essays on social, economic, or philosophical subjects (such as those contributed to this issue of INTERNATIONAL RECORD OF MEDICINE AND GENERAL PRACTICE CLINICS) may be permissible, if informational or inspirational and if reasonably articulate. Even oratorical addresses made before societies may be published (it is sometimes unavoidable), but their number should be mercifully limited.

There may be various causes for confusion in a medical communication. The lack of a clear message, clearly understood by the author, is the most fundamental of these. Next comes faulty organization with neglect of the rule that requires first things to come first and second things second.

A properly organized paper opens with an introductory statement demonstrating the existence of the problem that has stirred the writer into action. A statement of the *essential* contributions that others have made toward its solution may follow, as complete as need be but not tiresomely so, and adequately but not voluminously documented. Then comes the main course consisting of the author's own contribution simply stated and clearly illustrated to secure as wide and as understanding a readership as possible; it is followed by an interpretive discussion, a summary, and conclusions if any have been reached. A final consideration is the choice of language and the development of each sentence and paragraph.

The heritage of Babel has left the world today not only with a heterogeneous collection of strange tongues and curious symbols but with an unhappy propensity to emphasize these differences and elaborate on them. The same language, taking root in different soils, tends to develop different characters in each. So too with special cultures and cults, with different sciences and industries and occupations, each of which, rather simply and naturally on the one hand and artificially and ostentatiously on the other, creates its own jargon. They invent new words and divert the meanings of old ones, like the psychologist who changes "groups" of persons into "clusters" of them, until, it seems almost willfully, they have erected barriers that prevent the easy communication so essential to progress and to comfortable and satisfactory relations. They tend to forget that a reader or a listener is interested not in what the writer or the speaker knows, but only in what he can impart.

Medicine has been one of the worst offenders in this respect, not only having drawn much of its vocabulary from two classical languages, which have been hopelessly intermingled, but also employing proper names for the designation of diseases, symptoms, signs, and syndromes, from the Hippocratic facies, named for rather

than resembling the Father of Medicine, to Ménière's disease, suggesting by the sound alone a sort of madness, which in truth its victims may well believe it denotes. So far as classical nomenclature is concerned, there is still authority for considering Latin as the language of science, although "hip socket" has a descriptive familiarity for any nontechnical reader of English that acetabulum might lack. To translate an inflammation of the Latin vertebra into the Greek spondylitis (Pott's disease, if tuberculous) inclines one to look with increasing favor on certain sturdy Anglo-Saxon words of four letters.

Last year Lord Adrian,[2] delivering his farewell address after a five year term as president of the Royal Society of London, spoke on how the Society might best fulfill its original purpose of "Improving Natural Knowledge." The new value that he attributed to the Society's activities in these days of highly concentrated specialization in science is that of preserving the vital capacity of intercommunication. The Society must provide a medium through which specialists may present the results of their investigations "before an audience of fellow scientists who are not all fellow specialists."

The American Academy of Arts and Sciences, founded in 1780, a newer society in a younger land, had as its more elaborate purpose the cultivation "of every art and science which may tend to advance the interest, honor, dignity and happiness of a free, independent, and virtuous people." The Academy also now aims in its meetings at "appealing to a wider group than the speakers' fellow specialists." Only this year it has changed its ponderous *Proceedings* to a less formidable publication restricted to articles of general interest among educated persons, under the title *Daedalus*—named for the "artist, architect, artificer, engineer and pioneer bird man, inventor of the ax, the auger and the plummet, contriver of masts, spars (and possibly the sails to spread on them), and designer of the Cretan labyrinth"—a general specialist if there ever was one.

The keynote of good literary communication, next to its organization, is its simplicity, the degree to which the writer can make his mind accessible to the reader. The achievement of simplicity is, however, no simple task, and I can say with feeling that I personally have still to write a paper or an editorial or a letter that came easily.

And yet we have preached the sermon of simplicity so long that we have tended to ignore the fault into which we have been drawn of stripping the language clean to a degree that nothing shows, in spots, but the bones. Case records are made to read like telegrams, and into the intercellular substance of our modern more or less technical writing, even as in the pronouncements of politics, where it matters less, abbreviations trickle from the moving fountain pen like water dribbling from a leaky faucet. It implies a degree of presumptuousness on the part of the author, an expectation that because a certain combination of initials means something to him, it must mean the same to all.

The subject has been under consideration before this,[3] and initials have been conceded their legitimate place in a sort of literature, their acceptance without too great and persistent protest (GPP) representing the criterion of legitimacy, according to this source. In an investigation of the letter A alone, one finds that the triple

linkage stands for Agricultural Adjustment Administration, Amateur Athletic Association, American Automobile Association, Automobile Association of America, and Anti-Aircraft Artillery, in varying context.

AFAM and AF & AM mean to the knowing ones the Ancient Free and Accepted Masons; AAU and AAUP conceal from the uninitiated the otherwise obvious fact that Amateur Athletic Union and American Association of University Professors are subjects of discussion. Turning, with the aid of Noah Webster and his successors, to the second letter of the alphabet, one finds that the busy B, capitalized or in lower case, stands for *Bacillus*, Bible, bishop (in chess), boron (in chemistry), Boston, British, brotherhood, bachelor, base, bass, basso, bat, battery, bay, bicuspid, bolivar (a silver coin and monetary unit of Venezuela), book, born, breadth, and brother. And so it goes, tntm (too numerous to mention).

Each AIE (Area of Intellectual Enterprise) has its protective jargon (PJ) and its frustrant* monograms, ostensibly designed to improve the CI† but actually serving only to erect between author and reader a wall of irritated distrust. In science and particularly in medicine, one of the most prolific and possibly the least articulate division of science, "the mania for crisp consonants seasoned with a profusion of appropriate vowels with or without a peppering of interspersed periods has reached its height."[3]

The scientific culture of the day seems to be impelled by a sense of urgency in the delivery of its messages, but one need scarcely recognize in it the urgency that must have inspired the abbreviations used by the hieroglyphic author of a former day trying to get a short article off to his editor by the afternoon bullock cart. "And so far as economy in both time and space is concerned, it can be better served by w.o. (writing out) more words and using fewer of them."[3]

Verbosity is a fault but so is cryptogrammic abbreviation. Midway lies clear and incisive language, confusing neither by the use of unnecessary words nor by the omission or mutilation of necessary ones. The purpose of writing is not to impress the reader with the size of the writer's vocabulary or with his profundity or with his cleverness, nor is it an attribute of good writing to save space on the assumption that thereby time also is saved and clarity improved. Abbreviation introduces an element that may serve only to retard the reading, obfuse§ the reader, and confuse the message, if any.

Knowledge has grown to a degree that its multiple divisions are peopled by an increasing number of groups of individuals educated according to the demands of many varied techniques. The tendency is for these groups, perhaps innocently, perhaps deliberately, to invent new words and symbols, which are sometimes but not always necessary, and to divert the meaning of old words so that what seems familiar betrays the reader by carrying an unfamiliar meaning. It is not necessary to abandon the picturesque, but in scientific or other expository writing nothing should put the meaning in jeopardy.

---

* Jargon.

† Comprehension Index (Index of Comprehension).

§ Jargon for obfuscate.

Plainly discernible among the jungles of unintelligiblity and attainable for those willing to cut their way through to it lies a zone of clear writing. It has resulted from clear thinking and has been inspired by the desire to bring the ideas contained within it as near as possible to the complete comprehension of as many readers as possible.

BIBLIOGRAPHY

1. Sigerist, H. E.: Thoughts on the physician's writing and reading, Internat. Rec. Med. & G.P.C. 168: 609–615 (Oct.) 1955.
2. General Article. Lord Adrian on the functions of the Royal Society, Brit. M. J. 2:1443–1445 (Dec. 10) 1955.
3. Editorial. Alphabet soup, New England J. Med. 254:1007-1008 (May 24) 1956.

Change in Title of This Journal

Beginning with the January 1957 issue, the title of this journal will be changed to International Record of Medicine. The official abbreviation of this title for bibliographic purposes will be: Internat. Rec. Med.

The Principles of Bibliographic Citation

AN INFORMAL DISCOURSE ADDRESSED TO WRITERS OF SCIENTIFIC PAPERS*

John F. Fulton, M.D.

STERLING PROFESSOR OF THE HISTORY OF MEDICINE, YALE UNIVERSITY SCHOOL OF MEDICINE
NEW HAVEN, CONN.

> *There is no better fate through posterity than to be the author of a good bibliography. Scores know Conrad Gesner by the "Bibliotheca" who never saw the "Historia Animalium." A hundred consult Haller's bibliographies for one that looks at his other works, and years after the iniquity of oblivion has covered Dr. Billings' work in the army . . . the great Index* [of the Surgeon General's Office] *will remain an enduring monument to his fame.* [WILLIAM OSLER. Memorial meeting in honor of the late Dr. John Shaw Billings, 25 April 1913. *N. Y. Publ. Libr. Bull.*, 1913, *17*, 511–535.]

INTRODUCTION

Shortly before his death at the age of 99, Martin Joseph Routh, the picturesque old President of Magdalen College, Oxford, was asked by one of the younger Fellows of the College for some precept that would represent the experience of his long and scholarly career. Routh presently returned the laconic reply: "Always verify your references." ([J. W. BURGON]. *Quart. Rev. Lond.*, 1878, *146*, 30.)

By most students of science and medicine, the preparation of a list of references—which is often referred to rather inaccurately as a "bibliography"†—is looked upon as the unpleasant chore essential to the completion of a scientific paper; its importance, however, is generally minimized because of the fact that the form of the cita-

* Read April 28, 1933 to candidates for the M.D., M.S., and Ph.D. degrees, Department of Physiology, Yale University School of Medicine. In revising the paper for publication no attempt has been made to alter the local and rather informal character of the allusions to writings of individuals who happened, when the paper was originally read, to be in the audience. Read again as here revised on Nov. 5, 1955 to those writing theses for the M.D. degree at Yale. Through an error in the original reprint order, 2000 copies of the paper were received instead of the 200 intended, but the supply is now virtually exhausted, such has been the interest in the subject.

† The word "bibliography" is frequently misused by many conscientious writers in the fields of science and medicine. One often observes that a list of a half dozen citations at the end of a paper is incautiously headed "Bibliography," and many instances could be found in which a list so labeled includes only references to articles by the author of the paper itself. A consideration of the definition of bibliography should make any modest author avoid such an unconscious display of egotism (of which I have been unwittingly guilty more than once). Bibliography in its broadest sense refers to the systematic description of books with particular regard to their history, authorship, printing, publication, subsequent editions, etc. In the restricted usage more commonly recognized, bibliography means a list of *the literature of a given subject*. It may be that the list of references at the end of a paper does embrace all the literature of a subject, and if this is true it should be so stated. The citations indeed of an adequate Ph.D. thesis should, when collected together, constitute a true bibliography of the subject, but for obvious reasons the list of references at the end of the majority of papers should be labeled "References" or "Citations," not "Bibliography."

tions is inevitably changed in the editorial offices of the journal in which the paper is published. This widespread feeling concerning the preparation of bibliographic references arises from the fact that formal instruction is seldom given in this basic part of scholarship, and it is also due in some measure to the fact that the younger generation of medical writers has come to depend entirely too much on the editorial office for preparation, systematization, and verification of references to the literature cited.

Before attempting to discuss the subject in detail I should like to drive home a few plain truths. The first is that from considerable experience in evaluation of essays, Ph.D. theses, and longer manuscripts submitted for an opinion by editors and publishers, I have reached the conclusion that the character of the bibliographic citations provides an almost unfailing index of the scientific merit of a given work and of the care with which the manuscript as a whole has been prepared. If there is no consistency in mode of citation, if some volume numbers are given in Arabic and others in Roman, if the author's initials are included in one place and not in another, and if the journal abbreviations are erratic and illogical, these things suggest strongly that the author of the work is careless, and that he is probably as untidy in his habits of thought and in his laboratory experimentation as he is in handling his references. If, on the other hand, all references are set down in a uniform manner, with consistent abbreviations, and with respect for the German "umlaut" and for French accents, the manuscript itself may or may not be good, but it is then necessary to peruse it more closely. I am fully aware that mechanically minded people with a mania for uniformity (amounting sometimes to a compulsion neurosis) may prepare beautifully consistent bibliographies and be unable to do anything else, but such individuals seldom reach the stage of writing a thesis or a book.

There is no reason to deny the fact that the present meeting has been occasioned by an acute sense of horror created in me by the recent perusal of the first drafts of a large number of literary ventures submitted by various members of this Department. I have no doubt that the evidences of bibliographic philistinism with which I find myself surrounded are ultimately my own fault, since little advice has been given on the subject, and example, though a great ideal in teaching, must sometimes be supplemented by aggressive pedagogy! I propose therefore to take up a few of the basic principles of literary citation in the firm belief that such a discussion will ultimately save you labor and embarrassment, and in the hope that it may stimulate the Department as a whole to develop a standard of accuracy, completeness, and consistency in bibliography that will set a useful example to others.

The *purpose* of the bibliographic reference in a scientific paper is twofold: it should serve, in the first place, to give an accurate indication of the source of a given statement, and second, it must provide a clear and concise description of the nature and scope of the printed document in which the statement is to be found. To a scientific man the reasons for this should be even more evident than to our colleagues in literature and history, although they are generally much more observant than are we of the niceties of literary citation. Briefly the reasons are these: a citation constitutes an integral part of the scientific evidence of a paper. If a writer quotes from the literature without giving his reader the ready opportunity to verify his statement,

an important element in his chain of logic is omitted; the seeds of doubt may thus be sown in the reader's mind, and he may begin to ask whether it would be similarly difficult to find in the author's own experimental protocols the authority for his deductions and conclusions.

REFERENCES TO JOURNALS

A consideration of the technique of bibliographic citation falls naturally under two headings, journal references and references to books and official reports (usually those of some government agency). To a certain extent the remarks that follow in this section apply to both, and it will be unnecessary in the subsequent section on books to give separate discussion of many points, except in so far as books present special problems.

Authorship. One's opinion of the value of a citation as scientific evidence is determined in large measure by knowledge of several important facts. In the first place, who is the author—Delafield Dubois, for example, or his cousin, Eugene; J. B. S. Haldane or his father, J. S.? For these individuals are as different as they are interesting. In other words, the reference must clearly identify the author, initials being ordinarily sufficient for this purpose, but full given names sometimes being necessary; and if this is not sufficient, as in the case of the 31 John Adamses in the new edition of the *General Catalogue of Printed Books* of the British Museum (vol. 2, 1932), dates of birth and death must be appended as well. Some feel that the reference should also serve to identify the sex of the writer, and in bibliographies where only initials are given of males, females are indicated by inclusion of a given name. With double-barreled names it is essential to ascertain how much of it the author was born with; e.g., in the case of our distinguished colleague in this Department at Yale, the entire name "Dusser de Barenne" came to him at birth and "Joannes Gregorius" was added later. Dr. Dusser de Barenne thus appears with the "D's,"* and not under the "B's," in any bibliography. For other problems of alphabetization of names, i.e., what to do with the prefixes "D," "de," "von," and "van," I strongly recommend the *New York Telephone Book*, which, though less accurate, has a somewhat greater range than the *General Catalogue of Printed Books* in the British Museum and is developed on sound principles of alphabetization.

Title. In the second place one wishes to know the full title of a citation. A reference such as "Bucy, *Brain*, 1931" does not help much, however greatly we may admire Dr. Bucy or his excellent organ of publication, but when one finds:

> BUCY, P. C. Reflex-grasping associated with tumours not involving the frontal lobes. *Brain*, 1931, vol. 54, pp. 480–491. [or 1931, **54**, 480–491]

or

> BUCY, P. C. (1931) Reflex-grasping associated with tumours not involving the frontal lobes. *Brain*, vol. 54, pp. 480–491.

one knows that in 1931 Dr. Bucy questioned the localizing value of the symptom of reflex grasping in certain clinical cases, and that this must have represented his considered opinion, since the paper occupies 11 printed pages. One assumes, inci-

* A safe rule is not to alphabetize an author under his prefix unless the language he uses is English.

dentally, that the editor of *Brain* [now Sir Russel Brain] forced him to spell "tumours" with the "u," and one wonders if Dr. Bucy was so misguided as to insist upon the hyphenation of "reflex-grasping," or if this was also an editor's decree; but whether one contemplates these things or not, *in transcribing a title one scrupulously respects all vagaries of spelling and punctuation*, even if obviously incorrect or confusing, "sic" being placed in square brackets after an obvious error. Now it may happen that he or someone else has occasion to write further on the subject of reflex grasping, and it becomes desirable to cite an important point in his paper of 1931, which is not implied in the title. Thus on p. 489 he states that: "in the presence of a marked internal hydrocephalus with increased intracranial pressure the value of reflex-grasping as a localizing sign is greatly reduced." In a single sentence he thus explains the basis of his well founded skepticism, and it is clearly desirable to direct attention to this specifically. This may be achieved in one of two ways. The sentence may be quoted in a footnote with page indication, or it may be referred to in the text. Unfortunately many inexperienced writers assume that their bibliographic references appended at the end of a paper are for the purpose of citation of specific pages, and instead of giving the first page of the article they give the page on which the statement in question is to be found. This makes for errors and confusion and it violates one of the first principles of modern citation. This brings us then to two important conclusions: (1) The page reference for a specific statement must be relegated either to the text of the paper or to a footnote on the same page. (2) The full bibliographic citation, which gives the nature and scope of the printed document in question, *including total pagination*, should be given with the appended list of references and only there. It may happen, for example, that one wishes to refer in another place to a second specific statement in Dr. Bucy's paper. If the specific page is to be included with the reference, it is then necessary to repeat the reference in its entirety for the second citation. This is obviously undesirable, but according to the principles just enunciated it is very simple to insert a second or a third page citation into the text at an appropriate place, or into another footnote.

Journals and Their Abbreviations. A third fact of importance in a reference is a knowledge of the journal to which the citation refers, and whereas the titles of papers should not be abbreviated and in no circumstance respelled, it is common to abbreviate the title of the journal according to conventions that allow one to ascertain the language of the journal title. The conventions employed for abbreviation differ in various countries and in various editorial offices, but fortunately there is a growing tendency toward uniformity, thanks largely to the energetic measures employed by large institutions of scientific publication, such as the Wistar Institute, the American Medical Association, the English *Journal of Physiology*, and the Surgeon-General's Office. Let me say at the outset that the abbreviation for "Physiology" is "Physiol.", and not "Phys.", which, if used, leads to hopeless and irrevocable confusion with journals of physics and physical chemistry.

The journals and organizations that have given most attention to systematizing abbreviations to journal literature have been the Armed Forces Medical Library in their official catalogue (of the Surgeon General's Office), the British Museum, and the Library of Congress through the new series of their catalogue, but for scientific

literature the British have given us *The World List of Scientific Periodicals*, first published in 1925 with a new edition in 1933 and a re-edited third edition that appeared in 1952. UNESCO has recently published a volume, *World Medical Periodicals*, using *World List* conventions (1953). *The World List*, as it is commonly called, covers not only the periodical literature of the biologic sciences including medicine, but the periodicals of the physical sciences as well. In all, nearly 10,000 are included. Their scheme is a systematic one that enables a reader, at a glance, to recognize the language of the periodical as well as its field; the first letter of all adjectives in journal titles is written in lower case, whereas nouns always begin with a capital. This system offers a distinct advantage over that of the American Medical Association or the Armed Forces Medical Library, where no distinction is made between adjectives and nouns in journal titles. The third edition of *The World List* is still in print and can be obtained directly either from Butterworth Publications, Ltd., Bell Yard, Temple Bar, London, W.C. 2, or Academic Press, Inc., 125 East 23rd Street, New York 10. It should be in the offices of all periodicals dealing with literature international in scope. *World List* abbreviations have been adopted in Great Britain by many periodicals including *Lancet*, *The British Medical Journal*, and many of the other scientific journals, and it is hoped that in the interest of world conformity American journals will follow the good example of these British journals. I can add that four of the journals published from Yale, namely, the *Journal of Neurophysiology*, the *Journal of the History of Medicine*, the *Yale Journal of Biology and Medicine*, and the *Journal of Neurosurgery*, follow these conventions.

It was customary in the past to give the *place of publication*, even of journals, and if you examine the references to literature in Schäfer's *Textbook of Physiology* you will find that journal references are preceded or followed by the place of publication. In all instances of journals of the same, or approximately the same, name, published in different countries, indication of place is clearly still desirable; for example, the reference "*Proc. Roy. Soc.*" is too brief since there are Royal Societies in Edinburgh, London, Canada, Holland, South Africa, and Australia, and it is therefore preferable to write "*Proc. Roy. Soc., Lond.*" whenever a reference is made to the *Proceedings of the Royal Society* of London. In London, however, one finds a tendency to assume that there is only one Royal Society, and there the place of publication is often omitted. Despite this, the habit of indicating the place of publication of journals dies hard, for in the index list of papers in the *Journal of Physiology*, which is supplied gratis to the subscribers, one finds that the reference reads only, "*London and Cambridge, J. Physiol.*" Though one may have certain fixed ideas about the completeness of references, I look upon this survival as pedantic nonsense. The Cambridge Press has a London office (to be sure its chief office), but it also has large offices in Bombay, Calcutta, Tokyo, etc. If they were really consistent the reference would read "*London, Cambridge, Bombay, Calcutta, Tokyo, etc., J. Physiol.*"

Date of Publication. In nearly all medical and scientific journals at the present time, it is customary to have the year of publication follow the journal abbreviation directly (see Bucy, reference 1, above), or it is placed in parentheses after the volume and pages. In the biologic journals, on the other hand, in which citation in the text is generally by date alone, the year follows immediately after the author's

name, i.e., before the title is given (see Bucy, reference 2). This has the obvious advantage of allowing the eye to catch the date immediately after the author's name is read. And the position of the date, therefore, is clearly dependent upon the mode of citation employed within the text. If a numbered bibliography is used, it is preferable to place the year immediately after the journal abbreviation. Unless there are special reasons for so doing, e.g., discussion of priority, there is no need to give the month of publication. This convention, however, is still employed, at great expense, by the American Medical Association on the grounds that few physicians bind their journals. There is similarly no valid reason for giving the *number* of a journal in which a given paper appears, as this cannot generally be identified in the bound copy of a volume.

Another pedantic bibliographic convention sometimes insisted upon is the *split date*, i.e., when the volume in which a given paper appears covers a period say from December to April, the date is given covering two years, e.g., 1930–31. My contention has always been that a paper either did or did not appear in a given year and that this can be ascertained by careful examination of the volume. If it appeared in the first number, December, the date 1930 alone should be given, for the date should refer to the article itself and not to the volume in which it appeared. This is one of the reasons for placing the date prior to the volume. But precautions should of course be taken to avoid confusing the date when a manuscript was received for publication with the actual date of publication, the latter being the essential part of a reference.

The Volume Number. Following the date the volume number should be indicated, and the convention of putting all volume numbers in Arabic has, happily, become well-nigh universal. The alleged advantage of separating volume from page by giving the volume in Roman is entirely overbalanced by the difficulty that many intelligent people have in recognizing such a number, for example, as 189, if rendered in small Roman numerals. The question of whether one should include the abbreviations "vol.", "Bd.", or "tom.", before the volume numbers rests largely on personal preference, though many of the biologic journals still insist on it. If you elect to use these volume abbreviations, it is essential, in order to keep your reference entirely in the language of the journal cited, to use the conventional abbreviation of the language in question, thus "Bd." for the German "Band" or "tom." for the corresponding French abbreviation. The tendency in recent years, however, has been to place the volume number in either italics or bold-faced type without the volume abbreviation, a practice that seldom causes confusion.

Occasionally the file of a given journal is made up of different series, a new series sometimes being indicated by "N.S." before the volume number, or, if simultaneous and parallel, by letters, as in the case of the *Proceedings of the Royal Society* of London. In this instance the convention generally adopted is merely to put the capital "A" or "B" as the case may be, immediately before the volume number without using the word "Series." Thus for "*Proc. Roy. Soc., Lond.*," one may write "A 105" for "Series A, vol. 105."

Pagination. It is impossible to indicate the scope of a scientific paper without indicating its extent, and for this reason no bibliographic reference is complete unless

the first and the last pages are indicated. If only a single page is given, doubt at once arises as to whether we are dealing with a preliminary note or with a considered exposition, and if dealing with the latter, we should like to know whether the reference is to a two page article or to one that covers 500. I would direct attention of Ph.D. candidates particularly to this point, for in attempting to verify the references indicated in the preliminary draft of one thesis recently seen, I found seven errors in page references in the first page of the list of references; only a single page was given in any citation, the page reference was generally wrong, and most references were to preliminary notes. Of all places where completeness in bibliography can be advantageously cultivated, it seems to me that the Ph.D. thesis assumes the position of first importance, for not only is it the chief, and in some instances the only, opportunity for the development of painstaking habits of citation, but it is clearly an occasion in which every atom of scientific evidence should be marshaled to support the thesis in question.

Miscellaneous Information. It is always permissible in a bibliographic reference to indicate, after the formal citation of year, volume, and page, any additional features of the article that particularly deserve mention. The zoologic journals, for example, always indicate illustrative matter, especially plates. This undoubtedly is a survival of the time when lithograph plates were a special and costly feature of journal illustrating, deserving a special notice. But there is an added reason for referring, even nowadays, to inserted plates, for they may not be embraced in the ordinary pagination of the article and therefore the citation is incomplete if their existence is not mentioned. The ordinary method of indicating plates is by the use of the conventional abbreviations "pl.," "Taf.," "tav.," etc., according to the language of the title:

"pl." = plate or planche,
"Taf." = Tafel, and
"tav." = tavola.

It should be noted that "9 Taf." indicates nine separately inserted plates, whereas "Taf. 9" refers to the ninth plate. If illustrations are given in color, it is desirable to note this circumstance, and if the paper is merely profusely illustrated on ordinary text pages, the phrase "profusely illustrated" can be added in square brackets.

For reasons that must be evident to you, I have always made a practice of drawing attention to papers that have useful and accurate bibliographies. This can be indicated very simply after the formal references by a phrase in square brackets "good bibliography," "exhaustive bibliography," or some other appropriate designation.

Punctuation and Italics. The punctuation of a bibliographic reference is a matter of considerable importance, and it is determined to a certain extent by the conventions adopted concerning the author sequence, position of date, etc. In general, the author's family name is given first, preferably in capitals, and this is followed by his given names or initials. If the authorship is double, it is also customary to have the author's surname precede his initials; for example, JACOBSEN, C. F. and KENNARD, MARGARET A. In either case a full stop (period) is needed between the author's name and the beginning of the title. The use of the colon is unattractive esthetically and it really has no special justification. Many editorial offices insist

on placing the full title of the paper within double quotes. Though often helpful, this is unessential to clarity if the name of the journal is given in italics. If italics are not employed for the name of the journal, double quotes for the title of the paper are highly desirable, and the title should be followed by a full stop.

The use of *italics* for the names of journals and for book titles is almost universal in foreign journals in all fields of scholarship, and italics are also used in certain American journals, especially those devoted to history and literature. I favor it because it is attractive, adds to the clarity of the citation, and furthermore renders the use of double quotes for the titles of papers in journals unnecessary. Any textual references to a journal should similarly be set in italics.

Commas are all that are needed to separate date, volume number, and pagination, and the reference should close with a full stop, even if the date is placed in parentheses at the end.

The question of capitalization in titles will be referred to below.

REFERENCES TO BOOKS

Much greater confusion exists concerning citation of scientific books than in regard to references to journals, and the confusion is largely due to the wholly erratic and sometimes unintelligent conventions now employed by the publishers and the larger journal offices. Even the American Medical Association, which has earned the well deserved reputation of giving more attention to significant bibliographic minutiae than any other editorial office in the world, is incomplete in its citation of book titles. This office is guilty of unintelligible abbreviations of titles, of not placing the title in italics, and of offering no clue as to the scope of the book itself through indication of the total pagination. In recent years, however, the American Medical Association office, unlike other medical publishers, has given place and publisher of all books cited.

The minimum of information that the citation of a book should comprise is the last name and initials of the author, the full title accurately transcribed from the title page, not the binder's title, together with subtitles as long as these are of reasonable length. If any part of the title is omitted, as is often necessary in long seventeenth century titles, clear indication of the omission should be given by three dots. In accordance with the convention of italicizing names of journals, it is highly desirable also to italicize book titles and similarly to use italics if the exact title is referred to in the text. Following the title comes the place of publication and, if it happens to be an American town such as Springfield, where confusion is likely to arise because there are several towns of the same name, the state should also be indicated; after the town the incorporated name of the publisher is given, then the date, and finally the total pagination, and following this the edition of the book is indicated. It is quite essential to know whether we are dealing with a short brochure of 10 or 15 pages, a French thesis of 20 pages, or a treatise of 2000 pages. If the book is in two volumes, this fact should be noted following the edition, and the pagination of each volume given.

Pagination. Considerable differences of opinion exist as to whether pagination should be given at all in a book reference and, if given, what detail is it desirable to

observe? In most modern books, the preliminary matter is numbered in small Roman type, and it is therefore desirable to indicate the preliminary leaves by the Roman pagination and the ordinary text pages by the Arabic. As with indications of illustrative plates, one may note that "p. 212" indicates the two hundred and twelfth page and that "212 pp." indicates that the book has 212 pages. An adequate citation of Dr. Hitchcock's book will serve as a useful example.

> HITCHCOCK, D. I. *Physical chemistry for students of biology and medicine*. Springfield, Ill., Charles C Thomas, 1932, xii, 182 pp. [or, xii + 182 pp.]*

Such a citation is simple and sufficient in itself to allow one to order the book without further ado, and it gives other important scientific information. In the first place, the book is intended for students and it is clearly not a treatise or handbook. It is also brief, as the text occupies only 182 pages. One might have added to the citation in square brackets "useful references," for it gives references to the chief treatises on physical chemistry and to important recent papers on the subject, and as far as I am aware no one has discovered an error in any of the citations. The conventions governing its citations are, however, essentially those of the American Chemical Society, which unhappily do not give the pagination of books.

We may now consider two separate problems relating to modern books. The first has to do with textual references, and the principles here are the same as in journal citation. If it is desired to direct the reader's attention to a specific paragraph in a book, this must be done in the text or in a footnote accompanying the text. If the bibliography is numbered, a simple reference such as "HITCHCOCK (22, p. 100, paragraph 2)" does not disfigure the text and on the whole it is preferable to a footnote, since footnotes, if brief, are an inconvenience to printers, and notoriously subject to errors or dislocation.

If books appear in several volumes, this should be indicated in the bibliographic reference and, strictly speaking, the pagination of all volumes should be given. However, this leads to unnecessary labor in books of more than two volumes, and in such cases it is possible to treat the work essentially as one would a journal, giving in the citation, instead of "4 vols.," "vol. 4," and then only the pagination

* It should be emphasized that this citation of Dr. Hitchcock's book contains only the minimum of detail essential for a good working bibliography in a scientific article. When we come to older books, more fundamental problems arise in technique of description. If printed before 1800, the physical size of the volume is generally indicated together with the way in which its pages are folded, i.e., whether it is a duodecimo, octavo, quarto, or folio. Many early books were without numbered pages, and description of contents therefore is given by "foliation" (the number of leaves) or by "signatures," i.e., by taking advantage of the ancient printers' convention of lettering in alphabetic sequence the foldings of the successive sheets that make up a book. Thus if sheet "A" is folded once, the book is a "folio" and one refers to leaves "A1" and "A2"; if folded twice it becomes a "quarto" and one refers to leaves "A1" to "A4"; if folded three times it becomes an "octavo" and the first gathering of eight leaves is enumerated as "A1," "A2," etc., to "A8." These considerations do not generally affect the modern scientific writer, unless he happens to have the temerity to direct his reader to an unnumbered page of the works of Harvey or of Robert Boyle or to some other similarly erratic sixteenth or seventeenth century writer. He is then faced with a problem, and if he is unaware of how books of that period were made, he will have great difficulty in giving his eager reader intelligible direction.

of the volume in question, rather than the pagination of all four volumes. If, on the other hand, the pagination of both volumes is given in a two volume work, it becomes essential in the textual citation to indicate the volume as follows: "(22, vol. 1, p. 263)." Again it is preferable to treat the specific citation textually rather than in a footnote.

Capitalization of Words in Titles. The only practice of the American Medical Association in which I have detected serious inconsistencies relates to the *capitalization* of the first letter of important words in the titles of papers from journals and in book titles. In general, that editorial office tends to capitalize the chief words in titles of papers and, strange though it may seem, they seldom capitalize the words of a book title; but there is no consistency, and the result is entirely haphazard in all their various journals. *It seems to me that there is only one safe rule, and that is to capitalize no words in a title of a journal article or in a book title, unless they be proper names or German nouns for which grammar demands capitalization.* This simple rule prevents all the glaring inconsistencies that appear constantly in the American Medical Association bibliographies and in the bibliography of any student who tries arbitrarily to decide which word in a title merits capitalization.

THE PREPARATION OF BIBLIOGRAPHIC CITATIONS FOR PUBLICATION IN A SPECIFIC JOURNAL

There is a sharp distinction between the principles involved in the preparation of theses for higher degrees, which should incorporate all the highest literary traditions of the school at which the thesis is written, and in the subsidiary problem of preparing a short paper, possibly a fraction of the thesis in question, for publication in a scientific journal. All journals that are worth anything have fairly definite conventions with regard to literary form and bibliographic citation. Some journals allow authors' preferences within narrow limits, and this often applies to the question of including or omitting the titles of individual citations. In the nine journals controlled by the American Medical Association, full and accurate titles are essential for all citations. In the *Yale Journal of Biology and Medicine*, the question of including or excluding titles in references is optional, but unless the number of citations is very large, titles are preferred. Unfortunately, the *American Journal of Physiology*, through a misdirected attempt to economize, has excluded titles from ordinary references whereas they are included in full in her sister journal in England, the *Journal of Physiology*.

It is therefore essential, before submitting a paper for publication in a given journal, to study its bibliographic conventions closely; a paper submitted in the form acceptable to the journal is far more likely to appeal to an editor than one with haphazard references arranged according to some other system. For example, a paper offered to the American Medical Association for publication should be very carefully prepared from the point of view of its references, since the punctuation, arrangement, and sequence of details in citation are quite different in their publications from the reference forms used by most other medical journals in this country and abroad. The American Medical Association maintains a much higher standard of accuracy and detail than does any other medical journal office, and it is only to be regretted

that their punctuation is unusual and sometimes confusing, and their unswerving insistence on footnote references seriously impairs the value of their carefully prepared bibliographic citations.

This raises the important problem of the arrangement of references themselves. Shall they be appended at the end in alphabetic sequence, or shall they be distributed as footnotes; should the references be numbered consecutively, or should one use the year for identification?

ARRANGEMENT OF REFERENCES

The maximum number of references that an ordinary individual can carry conveniently in his mind in reading a paper is about 12 to 15. If the number be larger than this, some means must be adopted to facilitate ready identification. In other words, when a bibliography is short, i.e., from 1 to 15 references, it does not much matter whether the references are distributed as footnotes or whether they are appended at the end of the paper in chronologic, alphabetic, or any other sequence. However, with more extensive bibliographies the reasons for alphabetization at the end of a paper are overwhelmingly strong. The reference can be readily found, and an individual reference can be cited 15 times, if necessary, in various parts of the paper—by date or by number—and the reader is spared the tiresome task of paging back and forth through illogically arranged footnotes.

Footnotes versus Alphabetization. The decision of whether a bibliography should be arranged for citation by date, by number, or by footnote should rest *entirely upon the nature of the materials*, and in particular upon the number of citations. This fundamental principle of scholarship is too often ignored, more particularly by publishers and journal offices, especially in America where the desire for literary standardization amounts almost to monomania. Mr. Hoeber, for example, has a "house style" for spelling, bibliography, and what not, to which he expects all his authors to conform. The American Medical Association office treats all bibliographies in the same relentless manner, for better or worse (often for the better), quite irrespective of the nature of the manuscript. When a paper of 20 printed pages with 100 bibliographic references has all its citations crowded into footnotes without logical sequence, one detects a wholly unintelligent application of the principle of bibliographic standardization. However, if a similar paper of 10 references be treated in this way the result is useful and reasonable. Granted that standardization of form is essential for any given paper, publishers and editors should be made to realize that there is nothing lost, but rather everything gained, if each manuscript is treated as an individual problem. This, fortunately, is the policy pursued by our own *Yale Journal of Biology and Medicine*, and it is clear that medical literature would be vastly benefited if the larger offices could be persuaded to emulate Dr. Smith's reasonable example. Quite apart from the advantages that would accrue to medical scholarship from individual treatment, the economic saving would be enormous; it would lead, moreover, to more sympathetic cooperation between many conscientious authors and the larger journal offices. The high-handed treatment at present accorded to all manuscripts that are submitted to the *Journal of Biological Chemistry*, the American Chemical Society, and the American Medical Association has had the unfor-

tunate result of removing from younger authors all sense of personal responsibility for the accuracy and arrangement of their references to literature. A few conscientious teaching laboratories are attempting to place such responsibility squarely on the shoulders of the writers, and I personally look forward to the time when this laboratory will have acquired the reputation of never sending out a manuscript with an erroneous or an incomplete reference, and of always preparing its manuscripts in accordance with the conventions of the journal to which the paper is being submitted. If in return for our attention to these details we can obtain from the larger journal offices some expression of willingness to cooperate to the extent of treating the bibliographic arrangement of manuscripts as individual problems, we will have wrought an achievement that will do much to raise the standard of American medical scholarship.

Idem, Ibid., Loc. cit., and Op. cit. In order to avoid repetition in a large bibliography in which names of the same author and journal occur many times, the identity of names in successive entries is sometimes indicated either by a dash or by the Latin "idem" ("the same man"). This term should be carefully distinguished from "ibidem," generally abbreviated "ibid.," meaning "in the same place." In bibliography, "ibid." generally has reference to the name of the journal. This is well illustrated by the following series of references:

14. ECCLES, J. C. and SHERRINGTON, C. Studies on the flexor reflex. I. Latent period. *Proc. Roy. Soc., Lond.*, 1931, B 107, 511–534, pls. 35-36.
15. *Idem.* II. The reflex response evoked by two centripetal volleys. *Ibid.*, 535–556, pls. 37-38.
16. *Idem.* IV. After-discharge. *Ibid.*, 586–596, pls. 41-42.
17. *Idem.* V. General conclusions. *Ibid.*, 597–605.

When considerations of space are important, these widely accepted abbreviations are clearly useful, but it is only fair to say that in references such as the preceding they do not save more than a line of type, and sometimes not even that; therefore, many prefer, especially in a numbered bibliography, to repeat the complete reference under each numbered entry. If several references are included under a single entry, the above abbreviations are then more justifiable, but one must not forget that printers and authors are notoriously careless in the use of "ibid." In the preceding reference, for example, the year, the volume, and the series happen to be the same, but on seeing a reference set up in this fashion one is never quite certain whether the compiler of the bibliography has taken into consideration the year and the volume number.

Other learned conventions, often used carelessly and thoughtlessly, particularly by our colleagues in literature and history, are the phrases "loc. cit." ("in the place quoted") and "op. cit." ("in the work quoted"), for successive references to the same work. In a recent number of an American linguistic journal, I saw a footnote "loc. cit." that referred to a work cited 30 pages earlier in the article; many similar instances of unreasonable inconvenience arising from the use of this pedantic and rather stupid form of reiterative citation could readily be given. There are many ways of avoiding the inconvenience arising from such footnote references; certainly

the easiest way of doing so is to avoid these unfortunate conventions altogether, as can be done in a numbered or alphabetized bibliography.

GENERAL ADVICE AND CONCLUSIONS

It is scarcely necessary to reiterate the fact that references should never be taken from a secondary source. If you rely on *Physiological Abstracts* or on the abstracts of the *Journal of the American Medical Association* or on the *Quarterly Cumulative Index Medicus*, you are likely to incorporate grievous errors such as abbreviated titles, titles in English that should be in a foreign language, erroneous dates and volume numbers; and I would warn you particularly about the *Quarterly Cumulative Index*, for it gives fairly accurate titles under author, generally omitting articles "a" and "the," but wholly misleading, respelled, translated, and abbreviated titles under the subject headings. If you have been unable to see the original of an article in a journal or the original of a book, this circumstance should be clearly indicated by an asterisk or in some other fashion. Titles in other than the original language (Russian for instance) should be enclosed in brackets.

Once it has become a habit, bibliography is never irksome. If students early in their careers make it a practice to set down on cards full references to the papers they read, completion of the reference becomes a purely automatic process; and when a standard form has become firmly ingrained in the mind, it becomes unnecessary to think about the matter further. In settling on a standard form, it is highly desirable that it be detailed, since it is far easier to contract a reference than it is to expand it. Even though one is preparing a paper for the *American Journal of Physiology*, the titles are frequently of the greatest possible value for actually preparing the historical introduction of the paper itself. Indeed, a bibliography without titles, if it is made in the form of a card index, is as useless to the student himself as it is to everyone else.

The writer of an M.D. or Ph.D. thesis is bibliographically in the Elysian fields, for he can determine his own conventions and, for once in his life, he can give full expression to his preferences and to his sense of literary values. Let him not assume the responsibility lightly, for the opportunity presented is essentially one for cultivation of himself, his literary insight, and his standards of value and accuracy. Let him remember that as in the world of letters, so also in science, there is only one unforgivable sin—an erroneous bibliographic citation. I would therefore conclude, as I began, with the pungent remark of President Routh, "Always verify your references," and if I may be allowed one practical admonition, be sure to verify them from original sources after they have been typed for the last time; or if they are being printed, let them be verified in page proof, rather than in galley.

Minerva and Aesculapius

THE PHYSICIAN AS WRITER

Félix Martí-Ibáñez, M.D.

PROFESSOR OF THE HISTORY OF MEDICINE, NEW YORK MEDICAL COLLEGE, FLOWER AND FIFTH AVENUE HOSPITALS, AND EDITOR OF THE INTERNATIONAL RECORD OF MEDICINE AND GENERAL PRACTICE CLINICS
NEW YORK, N. Y.

LITERATURE AND MEDICINE

This Atomic Age of ours has witnessed the downfall of many traditions. Only a few weeks ago I stood once again entranced by the palaces in fabulous Venice and their reflections, wan and faded, on the dead green waters of the canals. Within their walls the tragedy immortalized long ago by Alfred de Musset is still unfolding: suits of armor are rusting away piece by piece; tapestries are fading away blossom by blossom, while the cressets stand empty of candles, and, for lack of powder, the wigs of the lackeys hang limp. There they stand, these ancient palaces, as though waiting to be closed forever or at best converted into prosaic flights of offices. In a like manner modern medical culture has been denying its proud classical heritage and contracting its once vast encyclopedic and humanistic domains, to become but an aggregate of ever more and more specialized techniques.

Since, as time goes on, the physician exercises less and less his imagination and literary ability, scientific expression is slowly being stifled. As Sir James Barrie, the magnificent creator of *Peter Pan*, once said, "The man of science appears to be the only person who has something to say just now and the only man who does not know how to say it."

And yet, paradoxically enough, the physician, more so than other professionals, has truly artistic strains hidden within his being, though he seldom allows them to burst from their shell for the edification of his fellow men. The physician, for reasons we shall shortly see, experiences, like few others can, the desire to relate what he knows or thinks, what he sees or dreams. The proof is that no other profession as medicine has provided so many famous writers. In the course of the world's history, physicians have outshone all other professionals in the writing of romance and philosophy.

Let us then look into medicine's contribution to literature and literature's reciprocal assistance to medicine and find out what are the psychologic reasons that determine the physician's urge to write and the connections between art and science, so that in the end we may descry what the art and the science of the future may expect from the development of a more "literary" type of physician and a more scientific type of writer.

THE COMMON ORIGIN OF THE PHYSICIAN AND THE ARTIST

"And I'd leave the hurry, the noise, and the fray for a house full of books and a garden full of flowers," once said the Scottish poet, Andrew Lang.

Throughout history the physician has always felt attracted to flowers and books.

In the classical Greece of the blossoming groves, as in the old Spain of the Moorish gardens, in the Rome of the splendorous palaces, as in the France of the great chateaus, the physician always sought refuge from the hazards and sufferings of his work in those book-filled, flower-begirded houses sung by the poet.

Let us not forget that the primitive doctor was an artist and that art and medicine are but the two sides of that cyclopean quarry which is the civilization of a country or of an epoch. The blocks carved from that quarry, whatever their shape or size and whoever their quarrier was, are all of the same stone, for all originated from the same mountain.

From the beginnings of the history of medicine, the physician has felt the urge to relate what came before his eyes in the practice of his profession, thus weaving with the raw hemp of human suffering the fine gold cloth of story and legend.

The physician and the artist have common roots in history. In primitive societies the physician was both priest and witch doctor. His triple mission was to cure mild ailments with drugs and potions, to appease the gods with prayers, and to master the demons through conjurations and magic. Later, he was a priest in Babylon, where, clad in a scarlet tunic and bearing a raven on one hand and a falcon on the other, he appealed to the kindness of the gods; a scribe in ancient Egypt; a naturalist in the Greece of Pericles; often a slave in Rome; a monk and "library doctor" in the Middle Ages. At all times art and medicine have remained united in the person of the physician, perhaps because, like art, medicine, which professionally was and is a service, must always be creation if it is to yield fruitful results.

The tradition of the physician as artist and philosopher is then as ancient as it is distinguished. In Plato's "Symposium," among the men of action and the philosophers gathered in the quiet shade of the silvery olive trees sat Eryximacus, a physician whose voice rang with science and conscience.

Since Plato, the physician has felt, as few other professional people have, a burning desire not only to impart his knowledge by means of the spoken and the written word, but also to wander whenever possible off the arid road of science into the green meadows of art and literature. On a previous occasion,* I discussed the physician's contribution to that monument compounded of the masterworks of medical literature accumulated through the ages. Here I will speak of what physicians have done as writers in the course of history. And in order to appreciate this achievement better, let us first examine medicine's contribution to literature.

MEDICINE IN LITERATURE

The writer's mind, like a weathercock, turns in whatever direction the social wind of his times blows. Medicine has perhaps been the strongest of all the winds bearing upon this weathercock of the mind, probably because sickness, pain, and death, being the greatest antithesis to health, joy, and life, are the most dramatic and the most universal subjects about which man can write.

There is room indeed for a literary history of medicine embracing an analysis of the greatest medical problems of mankind as seen through the eyes of men of letters

* In "Books in the Physician's Life" by Félix Martí-Ibáñez, M.D., *International Record of Medicine and General Practice Clinics* 168:650, 1955.

in each period. For throughout history writers have frequently used as background to their stories the most pressing medical problems of their age. For instance, Homer, faithful chronicler of ancient Greece, left us in the *Iliad* a vast mural of traumatology depicting arrow sword, spear, and stone wounds, contusions, and traumas of every type. In those times man lived by his fist and the main national worry was about the lesions resulting from such a violent way of life.

In the Middle Ages, an era of collectivism, as pointed out by Sigerist, "collective" illnesses, such as the plague, leprosy, and St. Vitus' dance, held fearful sway, to say nothing of contagious "fevers" propagated by the extremely low standards of hygiene prevailing in medieval cities. Thus it came about that there flourished at that time poems and legends depicting the cruel tragedy of leprosy, the foulest horror next to the plague to scourge the whole of Europe throughout that period.

The plague, the fearsome "Black Death" that in a few short years killed off a quarter of the population of the globe and half the inhabitants of London, could not but exert a powerful impact upon literary minds. On the macabre canvas of the plague, Boccaccio laid the scene of his roguish *Decameron* and Daniel Defoe wrote (1722) his *Diary of the Plague Year*.

During the Renaissance, an age of intense individualism in living as in art, there was an abundance of "individual" diseases, for example, syphilis, which inspired Fracastoro to write in 1530 his famous poem to which this disease owes its name.

Later on came diseases caused by nutritional deficiencies and poverty, such as typhus and ergotism, as well as others derived from overindulgence, like gout and dropsy, the scourge of the *bon vivants* in seventeenth and eighteenth century Europe.

Syphilis continued to lurk like a serpent in ambush behind the deceptive flowers in the Renaissance gardens of love. Both syphilis and gonorrhea rear their ugly heads in the pages of Boswell's *Memoirs*, for that faithful chronicler of the great Dr. Johnson caught these venereal diseases as an unexpected souvenir for his pains in pursuing the wanton ladies of his passions. Sir John Davenant, reputed son of Shakespeare, lost the whole of his nose, eaten away by syphilis, as the result of an unfortunate embrace with "a handsome wench in Axe Yard."

Syphilis continued for a long time to be the favorite theme of writers, who were its principal victims in France, where after having first driven some of them mad, it killed off writers like Baudelaire, Goncourt, de Maupassant, and Daudet.

Molière, obsessed against physicians and patients alike, assailed the profession in many of his works and has left us an ironical picture of iatrogenic diseases and of the harm involuntarily done by the physician who does not police his language and whose careless words may plant the seed of dismay in the ears of his patients. This new way of killing—by means of worry that ends in terror—echoes through the whole of Molière's satirical works like the anguished cry of a child smothered in the sumptuous folds of his prose.*

* Physicians have been the favorite target of satirists throughout the ages. In 1638 Francis Quarles said: "Physicians of all men are the most happy: Whatever good success soever they have the world proclaimeth, and what faults they commit, the earth covereth." It was Voltaire who said: "Doctors are men who prescribe medicine of which they know little to cure diseases of which they know less in human beings of which they know nothing." And Franklin said: "God heals and the physician takes the fee."

Shakespeare's knowledge of medicine is proverbial and has great historicomedical value since it helps to fill in the period between Vesalius and Harvey. It may be that the great dramatist had some influence on the work of the brilliant physiologist, since the whole of Shakespeare's writings is imbued with preoccupation regarding the motion of the blood and the beating of the heart. No other poet's work is so abundant in the use of these words. In one scene in "Hamlet," Shakespeare describes the course of the poison administered to Hamlet's father as it makes its way through all "the passages" of his body. It is quite possible indeed that the noble verses of the Bard of Avon, heard by Harvey in an age when the baroque was reaching its peak and art was all vibration and movement, sharpened his anxiety to perfect his *anatomia animata* or physiology, which was to culminate in his discovery of the circulation of the blood.

The romantic period awakened an unwonted predilection for laudanum among the poets, who took it as carelessly as we take aspirin nowadays. Thomas de Quincey, Coleridge, and Shelley frequently wrote under the influence of the poppy, whose tincture was freely available to the public at any apothecary's. The romantic French poets, as we have commented elsewhere,* who used hashish to spur the Pegasus of their fancy, were the forerunners of the recent scientific experiments with mescalin, LSD, and other hallucinogenic agents now used in the experimental study of psychoses.

THE ROMANTIC MALADY: THE MYTH OF CHLOROSIS

A favorite subject of the authors of that period was the "romantic malady" par excellence, a form of "consumption" accompanied by pallor, swooning, and sighs, which afflicted all the great literary heroines in Europe for practically a whole century. This malady attacked mostly young maidens with a greenish or cameo-like paleness, a nervous disposition, and anemia. In 1620 Varandeus of Montpellier gave this illness the name of chlorosis. Frequently, the process ended in fatal tuberculosis, as occurred to the Lady of the Camellias in Dumas fils' famous novel and, in actual life, to Julia Charles, the inamorata of Lamartine.

Nowadays we know that chlorosis, as Marañón has so brilliantly explained, was nothing but a literary myth, an ailment created by poets to whom pallor was synonymous with purity and love. In world literature pallor has always been a symbol of sexual passion. Pallor in woman, already noted by Ovid in his *Ars amandi*, became the classic *febris amantium*.

The romantic movement, which gave new values to the scene of drama and to the sickness and sin that were enacted thereon, played an important psychogenic part in making chlorosis the romantic malady of its period, reaching its apogee in 1830. Chlorosis was supposed to have affected Mimi in "La Boheme," who in fact suffered from tuberculosis. Chlorosis, which was nothing more than puberal and postpuberal symptomatic anemia, was an imaginative psychologic entity contributed by

---

* In the paper "Contemporary Physiodynamic Therapeutic Trends in Psychiatry" by Arthur M. Sackler, M.D., Raymond R. Sackler, M.D., Félix Martí-Ibáñez, M.D., and Mortimer D. Sackler, M.D., in *The Great Physiodynamic Therapies in Psychiatry*, published by Paul B. Hoeber, Inc., New York, 1956.

the poets to medical literature only to disappear when customs became more liberal and the love life and daily habits of young women more normal.

THE INFLUENCE OF CLAUDE BERNARD AND SIGMUND FREUD ON LITERATURE

When with Claude Bernard the evolution of medicine changed into a revolution, Bernard's experimental and naturalistic method exerted a powerful influence upon the French writers of his period and their successors.

Verlaine versified on hospitals; Saint-Beuve was an *externe des hôpitaux* in Paris; Balzac, in the words of Taine, was a "doctor" who "dissected" his characters instead of depicting them. His pet physician among the many appearing in *La Comédie Humaine* was Bianchon, to whom Balzac on his deathbed appealed as the only one capable of curing him. Balzac was inspired by a humble health officer from l'Ile Adam, Jacques Boisson by name, to create that other model physician, full of wisdom and kindliness, called Doctor Benassis.

Under the inspiration of Claude Bernard, Renan adopted the rationalist, experimental method in history, Taine in art, and Emile Zola—who dealt with medical subjects ranging from abortion to drunkenness—in literature. In imparting to the novel Claude Bernard's impersonality, Zola placed it at the service of science, thus being true to his own words: "I do not want like Balzac to make decisions on the affairs of mankind, or to be a philosopher or a moralist; I shall be satisfied with being a savant."

Flaubert, son and brother of physicians, was born in a hospital (just like Verlaine, who lived in hospitals "under the wing of my mother, *l'Assistance Publique*"), and was chained to the galley of medicine by his epilepsy. In *Madame Bovary* he proved his medical knowledge in his descriptions of Hippolyte's club foot, the purulent sores of the blind beggar, and the poisoning of Emma.

Claude Bernard with his new approach to physiology initiated the transition from the determinism of the ameba in biology to that of man's free will in literature, which was parallel to the transition from Hegel's philosophic fatalism to Virchow's physiologic fatalism.

When many years later Freud revolutionized psychopathology, his influence was felt in every novel written at the end of the nineteenth century and in the twentieth century, neurosis becoming from that time on the favorite theme of novelists, just as leprosy and the plague had been favored by medieval writers. From then on, deep psychology after the Freudian manner was contrived by such writers as Paul Bourget, who coined the medical terms "pathomimy" and "mythomany" and maintained that in every French novelist from the middle of the preceding century on there was a "physiologist . . . who yearned to bring to art the same freedom that the hospital and the operating theater granted the physician"; the Goncourts; Paul Valery, whose "visceral obsession" has already been commented upon; Marcel Proust, whose works could not have been produced without the groundwork provided by Freud; and later still by a flood of writers who either were physicians themselves or wrote about medical themes, such as in Norway, Henrik Ibsen in his psychiatric dramas where syphilis and alcoholism played such an important part; in France, Roger

Martin de Gard in his monumental work on the Thibaults, Jules Romain and Georges Duhamel; in England, Virginia Woolf, George Bernard Shaw, and James Joyce; in the United States, Eugene O'Neill.

Medicine has been, therefore, a perennial fount of inspiration for literature, and has provided the keynote for many of the greatest masterpieces in the world by drawing the attention of writers to the great dramas of history in every period.

Let us now consider the impact that physicians as writers have had upon the history of literature.

THE PHYSICIAN AS WRITER: RABELAIS, HALLER, GOLDSMITH, KEATS, OLIVER WENDELL HOLMES, S. WEIR MITCHELL, CHEKHOV, A. CONAN DOYLE, W. SOMERSET MAUGHAM

If men of letters have found in medicine and its eternal themes of pain and death an inexhaustible source of inspiration, physicians, too, have at one time or another felt the desire to peer more deeply into the life rushing like a swollen river beyond their office windows.

What have been the distinguishing features of the literary work done by physicians? We can do no better than apply to the medical writer the same clinical procedure followed in the study of various cases of the same disease. Let us first examine each case separately, though with the brevity obligatory in an essay, so that we may then try to find the common denominator connecting all these physicians. To some of them writing was as important in their life as medicine; others forsook altogether their profession in order to plunge into the sea of literature. Of the former class we might say, to parody Chekhov, that they took medicine for their legal spouse and literature for a mistress; and I would add that they had an overwhelming desire to divorce their wife and wed their mistress and thus legalize their "scandalous" passion for literature.

Of the physician-authors whom we shall review briefly, and of many others whom we cannot mention for lack of space, such as Arthur Schnitzler and Albert Schweitzer, one outstanding feature is the wide variety in their literary themes and styles, settings and techniques, which are almost as diversified as the medical specialties themselves. One, however, can discern a common thread running through all of them, which we shall analyze further on when dealing with the key to the psychology of the physician-author and of the physician who, like Molière's famous character, is an author "*malgré lui*," despite himself.

What Did the Classical Physicians Write about? At first, the physician wrote mostly philosophy. This is understandable if we remember that classical medicine was born within the shadows of the temples, and the temple has always been a favorite resort for meditation. The priestly physicians of antiquity were at the same time philosophers and thinkers. The doctor of classical times devoted his leisure to philosophy.

This was what Aristotle did. He studied medicine, although he did not practice it, and along with his biologic learning, which was accepted right up to the Renaissance, he accumulated the polished nuggets of his work on politics, ethics, and philosophy; so did Celsus, the most sophisticated Roman of his day, who clothed with the elegant trappings of his Latin his *de Re Medicina*.

In order, however, to come to the really lettered physician, we must traverse the days of the collapse of the Roman Empire beneath the double assault of clouds of anopheles and hordes of barbarians. Classical learning had survived only in the papyri that, next to the spices and myrrh, were transported on the backs of Arabian dromedaries along the great caravan routes and, later, by Moorish steeds, finally to be translated in Italian convents and in the palaces of Toledo. There monks and translators, working in the light of the medieval sun that embroidered their floors with the brilliant colors of the stained-glass windows, transferred the Hellenic wisdom from the Syriac vessels into the classical amphoras of the Latin language. Thereafter, from the height of the Middle Ages on, the physician commenced his incursions into the openly literary field. And with the medieval poet-physicians was opened the road that would lead to Schiller, Keats, and Schnitzler.

All the roads of literary medicine and medical literature lead to **Rabelais** (1494–1553)—that great peer of Cervantes, Shakespeare, and Dante, according to Coleridge—with whom the great tradition of the physician-littérateur really commenced. Rabelais had the supreme ability of reconciling his religious education, imparted to him by Benedictines and Franciscans, with his scientific education at the University of Montpellier, combining harmoniously his work as a physician in the 200-bed hospital, the Hotel-Dieu of Lyons (where he dissected a few corpses yearly and designed certain surgical instruments for the reduction of ruptures and fractures of the femur), with his taste for literature.

Every physician ought to read *Gargantua and Pantagruel*, Rabelais' great satirical epic, not merely because he poured into it so much of the medical learning of his age, but because it also contains the satiric spirit of an epoch in history made great by Thomas Linacre, Paracelsus, Vesalius, and Leonardo da Vinci. *Gargantua and Pantagruel* is a gleesome guffaw from the medieval world, a joyous shout of rebellion as mighty in its import on literature as was the impact of Paracelsus on the world of medicine. In this story Rabelais created that captivating character, Panurge, a swashbuckling scoundrel, based on François Villon, who with his carousals and jesting is perhaps the happiest figure to adorn the colorful pages of this work.

Besides the figure of Rabelais the Rebel, there stands out in contrast that of the conservative **Albrecht von Haller** (1708–1777). This prodigious physician from Bern was one of the marvels of the Age of Enlightenment, which comprised the latter half of the eighteenth century and which was the third great turning point of modern history after the Renaissance and the Baroque. At the age of nine, Haller had already compiled two dictionaries, Greek and Latin, and over two thousand biographies. After this stupendous start, he followed a medical career, at the end of which he left behind more than two thousand papers published in his medical review, Gottinger Ghelerten Anzaigen, fourteen thousand letters, the records of his clinical practice, a chair in botanical research, a multitude of books on medicine, and a whole galaxy of poetic, philosophic, and religious works. Although he maintained a friendly correspondence with libertines like Casanova and atheists like Voltaire, Haller in his poems sang above all the praise of God as in his famous poem on the Alps. Haller sought to combine faith with logic, creating a poetry imbued with Christian revelation and love of nature. His verses reveal that he looked on

mankind with the same tenderness with which he classified in his herbarium the plants and flowers of the Rhone Valley, since to him, as to St. Francis of Assisi, flower and man were brothers in the great communion of Nature before God.

If Haller's poetry causes us to reflect on the greatness of Nature, the work of that physician of Irish ancestry, **Oliver Goldsmith** (1728–1774), brings us in touch with the human being on the sentimental stage of his stories. Goldsmith was a fugitive from medicine. He studied at Edinburgh, Leyden, and probably Padua, receiving his diploma to practice medicine in London. Prior to trying his fortunes unsuccessfully in the field of medicine, he tramped through the whole of Europe with only a guinea in his pocket, playing the flute and teaching English for a year in a lonesome vagabondage that put to the test all his wits and fortitude. It may be that the society of such artistic geniuses as Dr. Johnson, Boswell, the painter Reynolds, and the novelist Samuel Richardson, set him off on the road to writing. He composed a series of poems that we can still read with delight, and a novel that Goethe considered the best in the eighteenth century and that Dickens himself took to bed every night. Reading the *Vicar of Wakefield* we can understand why Dr. Johnson said, "Goldsmith writes like an angel." I myself have read this novel many times, always with increasing pleasure. It is full of warm humanity with a bucolic strain of shabby-genteel sentimentality, rich in humor and tenderness. The prose is quiet, soothing, and translucent like the crystal-clear waters of a brook through which one can glimpse the pebbles on its bed. There is no better way, perhaps, to learn to write with clarity than to study carefully the Cervantesque "difficult simplicity" of this novel.

Goldsmith's limpid prose was still an influence in literature when another English physician, **John Keats** (1795–1821), graduated in 1816 at the Apothecaries' Hall in London after his studies at St. Thomas' and St. Guy's hospitals, was filling his poems with a visionary world stirred by chimerical breezes and warmed by the sun of youth. Keats died a tragic death at the age of 26, his hazel eyes glazed, his face waxen beneath the red mop of hair, his lungs eaten away by tuberculosis as he lay in bed facing the white stone steps of the Piazza di Spagna in Rome. But his poems, conceived during his anatomy classes, still lull the ears of the romantics all over the world.

The greatest contribution of the New World to the realm of physician-authors has been **Oliver Wendell Holmes** (1809–1894), of whom Osler said he was "the most successful combination the world has ever seen of the physician and the man of letters." Holmes was one of those rare cases of a genial child born to a genial father. (The year he was born also saw the birth of Darwin, Lincoln, Gladstone, Chopin, Mendelssohn, Tennyson, Edgar Allan Poe, Gogol, and Edward Fitzgerald!) Holmes won his place in the history of medicine with his work, *On the Contagiousness of Puerperal Fever*, which preceded that of Semmelweis and which he composed after practically nothing but theoretical book research, almost without any clinical experience, relying solely on his extraordinary intuition, thus proving what the scientifically trained mind can do in the realm of theory.

Holmes was also the author of the poem, "Old Ironsides," which saved the frigate "Constitution" from the scrap pile. He wrote other poems and "psychiatric" novels,

but the best known is his delightful *Autocrat at the Breakfast Table*, in which a philosopher, thinker, humanist, and humorist teaches us what many men of science have forgotten: that it is possible to reconcile science and conscience, learning and wit, without losing prestige as a scientist while gaining it as a human being.

Though I have great admiration for **S. Weir Mitchell** (1829–1914) as a writer, I have still more for him as a physician (he received his doctorate in medicine at the Jefferson Medical College in Philadelphia and studied under Claude Bernard in Paris), since it was his work that gave the status of a science to the study of neurology, which had started scientifically in 1820 with Bell and Magendie and clinically, later, with Duchenne of Boulogne, Broca, Charcot, Erb-Westphal, Jackson and Gowers. Mitchell published a series of admirable "psychiatric" novels and of these, his *Constance Trescott* is a must for the present-day physician, since it consists of fictionalized histories in which the author anticipated many of Freud's theories.

It is symbolic that Mitchell, a gentleman from old Virginia, should recommend as professor of medicine a Canadian by the name of **William Osler** (1849–1919), whose manners he tested at a gala dinner by having him served cherries with their pits to see if he could eat them as elegantly as he himself did. Osler not only survived the test, but, in addition, became the supreme example of the harmonious combination of physician and man of letters. Though Osler wrote no "pure" literature, his philosophic and medicohistorical works suffice to assure him a place of honor in the Hall of Fame of modern medicine. Osler was the Goethe of medicine. His genius for teaching and writing, so far excelled by no one, was partly transmitted to his pupil, Harvey Cushing, another fine example of the modern medical humanist.

Perhaps the last great example of the physician who sought to combine the art of writing with that of medicine was **Anton Chekhov** (1860–1904).

Russian literature, like all Russian arts and sciences, had a late start in history. In 1837, while the poems of Pushkin were still echoing around Europe, Gogol published his novel, *Dead Souls*. With this and, two years later, the first novel by Dostoevsky, a doctor's son bound to medicine by the tragic ties of his epilepsy, a new and powerful literature of universal appeal raised its head above the ermine-covered Siberian steppes. Half a century later, following Dostoevsky, Tolstoi, Turgenev, and Goncharov, came that brilliant author-physician, Anton Chekhov.

Son of a liberated serf, Chekhov graduated in medicine at Moscow, led the struggling existence of a country doctor, and died at the age of 44 from tuberculosis and exhaustion, far from home, in the shade of the pines of Germany's Black Forest. In addition to his journeys through Siberia, his struggle against cholera epidemics, his studies on the bad conditions in the penal colonies on Saghalien Island, and his sojourns to the French Riviera to combat his tuberculosis, Chekhov also wrote stories, dramas, and novels of a heroic pessimism, over which, however, there hovered a fleeting shadow of humor.

Chekhov was raised above his colleagues by those three hours daily and part of the night which, throughout his life, he devoted to the "secondary" task of writing. Writing was the mistress with whom he spent the night when weary of his legitimate spouse, the practice of medicine.

Chekhov's portrayal of the Russian people is remarkable. His use of the scientific,

experimental method in studying them in no way diminished his affection for them. His work sometimes lacks shape, perhaps because he preferred to take a cross section of Russian humanity and reveal it in its stark, naked reality. The reading of his works is to be recommended not only for the esthetic pleasure it affords (his short story, "The Siren," for instance, is a marvel of wit and humor), but also for a lesson in the art of telling a story well, with simplicity and realism, though always with elegance and artistry, which are equally desirable in the writing of novels and of clinical case histories.

A contemporary of Chekhov was the Scottish physician, **Arthur Conan Doyle** (1859–1930), whose professional life lasted barely ten years. First he served as a ship's physician on whalers in the Arctic and on the West African coast; then he waited eight years for patients who never came, first in his consulting room in Portsmouth and, later, in the neighborhood of Harley Street, only around the corner from the fame that years later would come to him through the literary road. His professional failure, however, was well redeemed by his success in literature, which transmuted into gold the lead of his existence as a doctor. His teacher, surgeon Joseph Bell, who by mere observation could diagnose the disease as well as the profession and life history of his patients, excited Conan Doyle to create his famous sleuth, whom he surnamed "Holmes" in honor of his much admired Oliver Wendell Holmes.

Sherlock Holmes brought Conan Doyle fame and fortune—and a psychologic conflict. For above all, Conan Doyle wanted to be recognized as a historical novelist. His eight historical novels (my favorites, which I have read and reread time and again, are "The White Company" and "The Refugees") are great models of the novel of action, admirably in line with Conan Doyle's personality as soldier, sportsman, traveler, crusader, poet, and historian. These really are his best works, although one is equally fascinated by his detective stories embroidered on the backcloth of Victorian London. Here, by the light of the gas lamps, through streets shrouded in fog and mist, the clack-clack of a horse drawing a carriage heralds the arrival of a mysterious damsel in rustling silks and another adventure for Holmes and the reader alike.

The best of Conan Doyle in my opinion is his historical work. All of it is tinged with a spirit of romance and chivalry. It gives a picture of the Crusades and of medieval France far superior to anything we can read in the often trashy "best sellers" of today. Conan Doyle's work bears the clinical, experimental stamp of the naturalistic physician, yet it lacks none of the humanistic and loving spirit that inspired his crusading life. In Sherlock Holmes are combined an analytic, scientific mind with understanding, kindliness, and a sense of humor, attributes of both a great detective and a great physician.

Another lover of detective novels, such as those of Conan Doyle, is my admired friend, **William Somerset Maugham** (b. 1874), with whom we end our list. Maugham's masters in writing technique were de Maupassant and Chekhov and in style Swift and Hazlitt. Graduating from St. Thomas' Hospital at the age of 24, he assisted at 63 child deliveries, working in the Borough of Lambeth (London) which he has immortalized in one of his novels. Though he retired early from the

practice of medicine, preferring to struggle as a dramatist and writer, he was of the opinion that every writer ought to have a good knowledge of physiology and psychology "for he must know how the basic elements of literature are related to the minds and bodies of men."

Somerset Maugham, whom I trust will soon be awarded the Nobel Prize for Literature which he ought to have received years ago, has applied the naturalistic, experimental method to his work as no other writer-physician has. His writings afford us some remarkable clinical and psychiatric sketches and, particularly, a picture of deep psychologic searching into the human mind. Although his novels, unlike those of Cronin, Slaughter, Sinclair Lewis, Georges Duhamel, and Lloyd Douglas, are not of a medical nature, they nevertheless bear the stamp of his medico-psychologic education. With him as the best example of the physician turned man of letters we end this chapter, remembering that the ingredients that Maugham recommends for the writing of good literature are also vital to the writing of good medicine—namely, *lucidity*, *simplicity*, and *euphony*.

If we now reflect for an instant on the examples here introduced of physicians who brought their clinical education to the art of writing, we perceive that in all of them there is present one common denominator—the application to the technique of writing of their training in the scientific, naturalistic, and observational methods of medicine. All of them, from Rabelais to Somerset Maugham, wrote realistic literature. Even those who, like Keats, were romantic poets never lost the sense of external reality and of man's humanity that they had gained through contact with pain and death in the course of their professional work. A medical career is, therefore, a good ground for literary training, since it provides that practical sense of reality so essential to a good writer. If the feelings do not become atrophied by daily clinical practice, it also provides that kindliness toward and respect for one's neighbor which have always inspired the truly great literature of all nations.

THE PHYSICIAN AS MAN OF ACTION

There is one interesting aspect in the life of all these physician-writers—common also to all nonmedical writers and even to other artists—that is evidenced in their own life stories. This is the lack of action in their lives. As a rule, the more prolific an artist's output is, the less active is his life.

The cases of writers who were men of action, such as Cervantes, Lope de Vega, Dumas, and Joseph Conrad, are the exception that proves the rule. As a general rule, however, great painters like Velázquez, great writers like Dante, great poets like Shakespeare, great thinkers like Kant, great historians like Renan, or great novelists like Tolstoi have been confined most of their lives to one place and have known few adventures or even excitement of any kind. This is explained not only by the fact that the task of creation demands that the artist withdraw from all active occupation, that he break away from the hustle-bustle of active life, but also by the marked psychologic difference that exists between the intellectual and the man of action.

The physician is basically a man of action. Perhaps this is why it is such a labor

for him to practice reflection and contemplation once he has decided to substitute creation for action. This is not difficult to understand.

There are two basic types of man: the *occupied* and the *preoccupied*.

The *preoccupied* man is the intellectual, the artist, the creator who feels no need for action and shys clear of it for fear that it might stifle his creative impulse. The intellectual lives within himself, engulfed in his own inner wealth of thought. This is at once his glory and his misery. The intellectual needs nothing, he needs no one, he is a microcosm. The mind of an intellectual is a perpetual festival of thought, a treasure chest filled with wonders, a music box forever playing intimate sonatas which he alone can hear.

In contrast to this preoccupied intellectual man we have the *occupied* man, the man of action. The physician belongs to this group. *Preoccupation* precedes occupation. It is the act of thinking first *before* taking action; it interposes ideas between the desire and its execution. *Occupation* is actual action; it is the jump from desire to execution; it means living in a state of reflexes, on an instinctive conative plane instead of on the intellectual plane. The intellectual is a little apraxic; the man of action, on the other hand, is a splendid animal vibrating with reflexes.

The man of action, the real adventurer, like Marco Polo, Casanova, or Pizarro, lacks an inner life. He lives extravertively, ever looking outward, and for him, words are merely tools and so are the ideas they contain. The intellectual lives an inner life, always looking inward, heedful of his ideas and emotions. The man of action does not exist for himself, and the hubbub of the outer world to which he is always tuned does not allow him to hear his inner voice. He is dominated by impulse, not by imagination, which he lacks completely. And imagination is the key to the vocation of the intellectual.

The physician's psychologic conflict is that medicine in all its fields, even in research, is eminently a profession of men of action. This is particularly true of the surgeon, that swordsman of medicine, who thinks with his fingertips and writes with his scalpel, who lives in a perpetual race against the clock, and on whose ability for quick decisions as he works depend the lives of his patients. Even the general practitioner is ever more the man of action as he tries to outrace disease or, at least, to keep up with the present swift pace of science.

The physician was a contemplative man in the times when medicine was mainly theoretical and patients were diagnosed by looking not at their faces and bodies, but at the treatises of Galen and Avicenna. Today the physician is a man of action, living in a perpetual whirl of activity, like the country doctor, or immersed in an endless series of short, broken episodes enacted by the long stream of patients at his office or at the hospital.

The physician therefore may very well decide as the days whirl by that he cannot allow himself the luxury of writing, for it would mean, he feels, turning his back on impulse and action only to favor imagination and art. And yet cultivation of the imagination would make of him the ideal physician anticipated by Osler: The physician who can alternate hours of intense action with hours of meditation and reflection that might result in a great medical treatise, just as the hours of action might result in a scientific discovery or a new clinical method.

The physician should realize that writing is another form of action, indeed one of the most dynamic, and that the use of words to communicate his ideas can also make him a man of action, not only in space, by being able to reach physicians the world over, but also in time, by leaving behind his written thoughts to assist his successors from generation to generation. It is the duty of the physician, who is one of the makers of modern history, to believe in himself not only as a man of action in space, but also as a creator in time. The only way of doing something worth while in time is to use the written word, our only means of reaching the future, just as reading is our only means of communicating with the past.

THE PSYCHOLOGIC MOTIVES OF THE PHYSICIAN-WRITER

(a) *The Premature Choice of a Profession.* Why does a physician write literature? We are not referring only to those physicians who have become famous as writers, but also to those others who, apart from their professional work, translate their literary leanings into poems, short stories, novels, or philosophic and historical essays.

The first answer that comes to mind is that many physicians choose a medical career because, their minds not being as yet mature, the profession appears to them romantic, sentimental, and humanitarian. Medicine to them is the *camino real* to the fulfillment of their dreams. This was what happened to Maeterlinck, a frustrated physician who thought of medicine as a diamond key to the most secret recesses of the soul.

Years later, many physicians discover that they are interested in life not so much as a general philosophic problem, as in the case of the "pure" scientific researcher, nor as an individual practical problem, as with the practicing physician, but as a psychologic problem. This impels them belatedly to write as a means of expressing their most secret yearnings.

It is a curious paradox that during the romantic movement, a period of intense individualism, life mattered more as a general and abstract problem, while today, at the very height of a collectivist period, life matters more as an individual and psychologic problem.

(b) *Escape from Professional Life.* The physician, whether he has literary leanings or not, is attracted to literature more than other professionals, perhaps as a reaction against the painful, many times hopeless, surroundings of his work. The hospital, the laboratory, the medical institution would probably end by exhausting him and drying him up spiritually were it not for the vital sap that he can derive from a mere glimpse into the world of letters. Literature, more than painting or sculpture, can provide the door through which the physician may escape temporarily from the shadow-world of disease into the light-world of fancy. Just as Goethe, by "killing" Werther, sublimated through artistic creation his sorrow at losing his own Carlotta, so does the physician sublimate through literature his anguish in the face of pain.

(c) *The Secret Vocation.* The human being generally is not born a physician, a lawyer, a mason, or a carpenter. He often harbors within himself an ideal program of achievements in life which more often than not the need for survival compels him to forego. We all harbor in our minds a whole world of success dreams, and our

success in life is measured by the extent to which the realization of such dreams fills out our social profile. There are some professional people whose life seemingly has a wide, well filled social profile; but let one peer intently into it and one discovers within the elaborate frame of success a pitifully wasted creature, languishing under the defeat of his youthful illusions. In the eyes of many a successful physician there lurks the figure of a melancholy child who never saw his dreams fulfilled.

Literature opens the gate to those possibilities that every one of us entertains in his mind, to those "unlived lives" that we all conceal in our hearts, and to the complex vocations that form a constellation around our "official" calling. There are times, however, when timidly allowing leash to one of these secondary vocations, it swells to gigantic stature, sweeping us off our feet and compelling us, like a triumphant and all-powerful demon, into a path quite different from that which we had been following. For this secondary vocation, not the "official" one, this secret and private vocation, not the public and social one, was indeed our true vocation. This is what happened to those physician-fugitives from medicine who became successful writers.

(d) *A "Reserve" Preoccupation.* Literature, moreover, can compensate for that monotony inevitable in the medical and any other profession. A physician who is only a physician and nothing more can grow very bored with life; so can an engineer or a lawyer. Contact with our professional environment to the exclusion of everything else has a mechanizing effect; it turns us into automata. We can be saved only by a "secondary" existence with a certain amount of that disorder, that negation of regularity, that is intrinsic to artistic invention.* There is a sort of creative chaos that can save us from the boredom of the mechanized profession (the artist himself sometimes gets fed up with the world of inspiration and seeks relief in some manual labor), and by offering us a "reserve" preoccupation, it can preserve us from deadly tedium, just as our organic reserves of fat and sugar, as Marañón has pointed out, protect us from the dangers of fasting.

Now, it so happens that many times literature, which the physician adopted as a secondary activity, ends by getting the upper hand as a revenge against his false vocation and to the triumph of his true vocation. The physician then ceases to be an actor in life and becomes what the artist is—an observer of life. Even the most famous men of science do not escape this inexorable need to combine science with art in their life, whether it be writing short stories, as Cajal did in the cafés of Madrid, or composing sonatas and philosophic essays, as Albert Schweitzer has done in the heart of the African jungle.

Moreover, the physician has more things to tell than the ordinary writer, for he accumulates a rich store of human subjects in the course of his professional duties. The specific medical range of subjects, however, is extremely limited, since conflicts with pain, as with sin, are limited in themselves. A physician or a sinner who

---

* "While medicine is your vocation, or calling, see to it that you have also an avocation—some intellectual pastime which may serve to keep you in touch with the world of art, of science, or of letters. Begin at once the cultivation of some interest other than the purely professional. The difficulty is in a selection and the choice will be different according to your tastes and training."—Osler, *Aequanimitas and Other Addresses.*

relates exclusively the sufferings of pain or the pleasures of sin would soon prove himself unbearably monotonous and boresome unless he embellishes his tales with the trappings of literature. This Axel Munthe did with medicine and Casanova with sin. They "made" literature because they painted their stories with the magic brush of their art.

(c) *The Craving for Immortality*. Another reason the physician has for "making" literature is that he is aware that a medical document not only is comparatively anonymous, but has a life that is relatively short. Medical writing and medical discovery outside the professional sphere receive very limited or no recognition. (How many "men in the street," for instance, know today who was the discoverer of the antidiphtheria serum, or of chloramphenicol, or of the microscope?) The name of the medical discoverer or writer is all too soon forgotten. On the other hand, artistic creation lasts forever. The same "men in the street" who do not know the name of the inventor of the thermometer they so often use, or of the discoverer of streptomycin to which they may owe their lives, can probably tell you who did the "Moses" or "The Night Watch." Scientific discovery lasts through the ages, but it is never identified with the name of its discoverer. The work of Aristotle, Einstein, Descartes, and Vesalius, though everlasting, is not associated with the personalities of their authors. But artistic work not only is itself immortal, but also gives immortality to its creator. This is what subconsciously impels the physician and the scientist to turn to literature; it is a means of gaining the immortality that is forbidden to them as physicians.

People are rather suspicious when dealing with physicians who are also writers. A plumber in the building where I live recently asked me to recommend him a physician, "but not one of those who write books." These people are right to mistrust the physician who devotes more interest to his writing than to his patients; but they ought to know also that the physician who knows only medicine and nothing else does not even know medicine, and that creative activity makes a much better physician by making him a better man.

THE DUTY OF WRITING

For a considerable time now I have been preaching (no doubt in the desert, which is where all preaching, inevitably, begins and ends) the duty of the modern physician to write, a duty that is forgotten and neglected more and more.

Today many people write when they want to dazzle others with their knowledge, or when they hanker to see their name on a book. But very little is written communicating each one's spiritual experiences. It is vital that the physician write more. For this purpose, he must learn to meditate; he must withdraw from the maddening crowd and concentrate on the search for that inner light almost extinguished under the glitter of city lights.

Once, when planning one of his major works, El Greco shut himself in his darkened studio while, outside, the imperial city of Toledo glittered like a fine-cut gem under the golden Spanish sun and doves fluttered in the clear blue sky like white kerchiefs waving good-by. "Come out into the sunshine," his disciples cried out to him, and El Greco answered, "My light is in myself."

Cultivation of the belles-lettres in any of its forms would also be of great value to the physician in improving his professional writing. By helping him to be more articulate, it would improve his technique, which, in turn, would induce him to write more. "A bad book is as much a labor to write as a good book," Aldous Huxley has said.

CLARITY IS IMPERATIVE

"*Speak clearly, gently, truly, properly*"
(The Oath of the Hindu Physician, c. 300 B.C.)

It is vital to cultivate the habit of writing with clarity, simplicity, and euphony. Everything must be sacrificed to clarity. Even truth itself ceases to be truth when it becomes entangled in the coils of a verbose prose. There have been orators in history who, before addressing their audience, have read over several pages of a dictionary or of the Bible in order to impart simplicity and conciseness to their speech. Reading the great masters of prose is a means to this same end. It all helps to acquire the great classical frame of learning compounded of serenity, tradition, and judgment.*

Writing has to be a labor of love for the physician. His books must be the result of well planned meditation. In *Don Quixote* Cervantes had this to say about historical literature:

> "History is a sacred kind of writing, because truth is essential to it . . . notwithstanding which there are those who compose books and toss them out into the world like fritters. . . ."
>
> "There are few books so bad," said the bachelor, "but there is something good in them."
>
> "There is no doubt of that," replied Don Quixote, "but it often happens that they, who have deservedly acquired a good share of reputation by their writings, lessen or lose it entirely by committing them to the press."
>
> "The reason of that," said Sampson, "is that printed works being examined at leisure, the faults thereof are the more easily discovered; and the greater the fame of the author is, the more strict and severe is the scrutiny. . . . And therefore I say that whoever prints a book runs a very great risk, it being of all impossibilities the most impossible to write such an one, as shall satisfy all kinds of readers. . . ."
>
> "Does the Author aim at money and profit?" asked Sancho Panza. "It will be a wonder then if he succeeds, since he will only stitch it away in great haste like a tailor on Easter-eve; for works that are done hastily are never finished with that perfection they require."†

A knowledge of literature helps to develop clarity in scientific expression. "In science," as Marañón has said, "the form in which truth is clothed is part of truth itself, and truth being clear by nature, the art of clarity is a scientific factor of the first importance." Writers would have much to gain if they were to read, as the Cubist painter, Juan Gris, did in his leisure hours, scientific works to temper down

---

* An artistic pastime helps the physician to acquire greater culture, replacing his erudition by humanism, his specialization by encyclopedic knowledge, since the best specialist is he who has a more universal mind not he who is symbolized in the sarcastic definition made by a nasty joker: "A specialist is a man who knows much about little, and who successively knows more and more about less and less, until finally he knows practically all about nothing. An encyclopedist is a man who knows very little about much, and who successively knows less and less about more and more until finally he knows practically nothing about everything."

† From the World's Classics edition of *Don Quixote*, translated by Charles Jervas, Oxford University Press, London, 1928, Book II, Chapter iii, pp. 31–32.

their rhetoric, just as scientists would also gain beauty of style by practicing a literary discipline.

Scientific prose can be clear without sacrificing beauty, as shown by Cajal's works, and beautiful literature can also be scientifically accurate, as shown by Virgil's exquisite versified description of swine fever. The elegance of medical writing lies in clarity. When it is nonexistent, as in present-day psychoanalytic texts, it impedes the progress of science, as has happened in psychiatry.

In order to communicate effectively, the physician must learn the technique of gracefully alternating short and long periods. He must use adjectives sparingly and substantives lavishly. The Spanish philosopher, Miguel de Unamuno, once remarked, "We must speak in substantives!" The physician-writer must not fear the repetition of words and concepts, since without repetition, which in turn adds clarity, it is difficult to impart knowledge.

I have elsewhere said that I do not believe in the so-called "rules for good medical writing" laid down, in many cases, by nonmedical writers who, with no other encouragement than the patience of their readers, have presumed to arbitrate on such matters. I believe in clarity. I also believe in beauty of style, in the metaphor, in the lengthy phrase when it suits the case, in the unusual word when it is exact in definition and rich in meaning—in short, I believe in quite a lot that is now being banished from medical writing by those who evidently do not know that these very qualities made the prose of Osler and Cajal great and imperishable.

I also advocate something else that American medical literature has almost completely eliminated—the literary quotation and poetic, philosophic, and classical allusions. In this respect, I salute the *British Medical Journal* and *Lancet*, which, like *La Presse médicale* in France and the medical journals of Spain and Italy, have preserved a humanistic tradition in medicine. I believe that it is now time to reinstate this noble tradition in this country.

WORDS AND IDEAS

To write is to communicate ideas by means of words, which, according to Aldous Huxley,* are man's foremost and greatest invention.

* "That is the test for the literary mind, the feeling of magic, the sense that words have power. The technical, verbal part of literature is simply a development of magic. Words are man's first and most grandiose invention. With language he created a whole new universe; what wonder if he loved words and attributed power to them? With fitted, harmonious words the magicians summoned rabbits out of empty hats and spirits from the elements. Their descendants, the literary men, still go on with the process, mortising their verbal formulas together and, before the power of the finished spell, trembling with delight and awe. Rabbits out of empty hats? No, their spells are more subtly powerful for they evoke emotions out of empty minds." (Chapter XX.)

"The pleasures of human contacts are much exaggerated. . . . It seems to me doubtful whether they are equal to the pleasures of private reading and contemplation. Human contacts have been so highly valued in the past only because reading was not a common accomplishment and because books were scarce and difficult to reproduce. *The world, you must remember, is only just becoming literate.* As reading becomes more and more habitual and widespread, an ever-increasing number of people will discover that books will give them all the pleasures of social life and none of its intolerable tedium. At present people in search of pleasure tend to congregate in large herds and to make a noise; *in the future their natural tendency will be to seek for solitude and quiet.* The proper study of mankind is books." (Chapter XXVIII.)—Aldous Huxley, *Crome Yellow*.

The social need for writing was born in the dawn of civilization. After the grunt, the shout, and the spoken word came the transmission of thought by means of graphic and plastic signs. At first, writing, being more ideographic than phonetic since it represented ideas rather than sounds and words, consisted in drawing objects and things, after which followed hieroglyphic or symbolic writing, and finally artistic or plastic writing.

"Writing," in the words of Abraham Lincoln, "the art of communicating thoughts to the mind through the eyes, is the greatest invention of the world—great in enabling us to converse with the dead, the absent and the unborn; and great not only in its direct benefits, but greatest help to all the inventions."

Now writing is done by means of words, and these should be "invisible" while clearly revealing the ideas they embody, just as a fine glass brings out the rich color of a red wine while it itself remains imperceptible. Language should fit ideas in the same way that tights fit the acrobat, accentuating the contours they cover, instead of deforming or concealing them as crinoline skirts once did to women's figures.

Nowhere is clarity so important as in the description of scientific methods and apparatus. This type of writing puts the writer to the supreme test of clarity. The monk, Benito Feijoo, in his "Theatre" and "Letters," created scientific Spanish, as borne by his descriptions of the "magic lantern" ("Teatro," III, 11, 12 and 13) or of the air-pump ("Teatro," V, IX, final note). Cajal left descriptions of laboratory techniques that are unsurpassable models of clarity and conciseness. Such manner of writing is not to be learned in correspondence courses, but by extensive reading of good literature.

WRITING IS A SOLITARY ART

This kind of writing demands solitude, something rarely granted to the physician unless he sacrifices his hours of rest or pleasure. Writing is the most solitary of all occupations. It is also the most sublime of the arts. While other arts always require certain special and sometimes costly tools—canvasses, paints, brushes, chisels, marble, a grand piano, models—writing requires only the most humble of tools—a pencil stub and a few sheets of paper—yet it is possible with these to create a masterpiece that may embody the melody of a symphony, the rhythm of a ballet, the coloring of a fresco, and the cadences of a poem, transcending all barriers of time and space. Literature indeed is the embodiment of all the arts.

Writing is, we repeat, the most solitary of the arts. The best place for writing is inside the writer's head, as Hemingway has said. And Vicente Blasco Ibáñez recommended as the writer's best equipment "a good set of kidneys" and the fortitude to remain seated eight or ten hours a day. Writing being then a lonesome task, most famous writers led a quiet, uneventful life. When they indulged in some action, they did little or no writing. To write their best, they had to withdraw from the world and even from love and happiness and be a slave to their pen. When a man of action such as Casanova turns writer, he has to cease being the man of action and become a spectator of his own life. The writer (so I heard the philosopher, Ortega y Gasset, in Madrid, describe him) is a man who does not live, but contemplates how others live.

From what has been said herein, it can be deduced that I advise the physician to "make" literature even when he is writing on medicine. Even if he has but little creative talent, he should assiduously encourage it, counterbalancing his hours of research and clinical practice with the cultivation of good writing, using for material the thousand facets of life that file daily before his eyes. Let him begin by exercising his imagination when writing his next case history.

Elsewhere I have pointed out the historicomedical importance of the case history as a record of the medical learning at any particular period in history.* A good case history can be of more importance (may laboratory workers forgive me this heresy) than an extensive examination complete with analyses, for a good case history reveals not only the patient's past and present life, his morphology and the biographicopathologic course of his existence, but also the repercussions of his organic, humoral picture on his soma and psyche.

A good clinical case history makes it possible today to diagnose the disease of a slave of the Egyptian Pharaohs or of Imperial Rome, of a warrior from the times of the Incas, or an Emperor of the Ming dynasty, or a Doge from Venice, or a King of the Austrian dynasty in Spain. A clinical case history was of yore a precious document, fashioned with love and respect by the physician. Today, it is indifferently committed to the hands of a subaltern. In this manner we are losing the habit of careful anamnesis, without which there can be no truly scientific medicine.

The clinical case history is the basic medicoliterary document of medicine. A good clinical case history, like a well-written short story, should have a "beginning," the patient's personal and family antecedents, a "middle," the patient's present problem, and an "end." This "end," of course, is foreshadowed projectively by the prognosis.

To demand clinical case histories based on observation by the physician of the patient as a human being is to compel the physician to write better and to write more. To write a good clinical case history is to be a clinical novelist. It is to know how to observe shrewdly and how to describe vividly. It is to make the reader subconsciously identify himself with the patient, just as the good novelist makes his reader identify himself with the hero.

There is one other essential quality: to know how to apply one's imagination in interpreting a chart or in reading a laboratory tabulation. A table containing a patient's diastolic and systolic pressures, blood viscosity, pulse, temperatures, etc., to the untrained person is no more than a mass of figures. But to the clinician, unless he has grown insensitive and callous, such a table is the drama of a human being fighting for life.

To train his mind in literature will help the physician to see, to interpret, and to describe better—all attributes of the great artist and the great physician. Medicine is the most dramatic of all the professions. Why are we bent on mechanizing it? Why not follow the example of the great classical masters? They never allowed

* In "The Next Half Century in Antibiotic Medicine and Its Impact on the History of the Clinical Case History" by Félix Martí-Ibáñez, pub. in Antibiotics Annual 1955–1956, New York, Medical Encyclopedia, Inc., 1956.

science to destroy their sense of the tragic or their compassion for mankind.

Today's clinical case histories are arid documents without any dramatic worth, except perhaps for psychiatric cases. These, unfortunately, are crammed with such psychoanalytic jargon that they are unintelligible even to the psychiatrists. Hippocrates' clinical histories, the medieval *consilia*, Sydenham's and Freud's case histories—reading these one feels once more that sense of greatness in clinical narration which has been lost in the ruling craze for "technical" expression.

A true portrait in words, a vivid verbal image of the patient's past and present, and a preview of his future—this is what a clinical case history should be. And this would be not only good writing but, above all, good medicine.

THE NECESSITY OF KNOWING HOW TO "FIND" TIME

Of course, the busy physician will contend that it is extremely difficult to write when one has no time to spare, and besides not everybody possesses the natural talent to become a writer.

Granted that not everyone can be a mine of productivity like Lope de Vega,* who was more prolific than anyone else in the history of literature, and that not everyone can produce a complete novel in one day like George Simenon, the Belgian novelist. On the other hand, nothing, not even illness, can stop a man if he really craves to write. The Italian writer, Giovanni Papini, though completely paralyzed, went on writing until the time of his death. He had cards made bearing the letters of the alphabet and, by winking his eyes, he would indicate to his niece the cards that would form the words he wanted. It would take him a whole week to write a very short piece. The contemporary Austrian poet, Hieronymus Lorn, lost his sight and hearing at the age of eight; but right up to his death on his seventy-second year, he composed verses and other pieces by pressing his fingers on the hand of a relative.

The secret of prolificness in writing is simple: first, to be methodical and persevering; and, second, to employ fruitfully those precious minutes and seconds, that "golden dust of time," wasted in unnecessary telephone conversations, in reading rehashed news, in watching worthless television programs, and, particularly, in abating those devourers of time, "chronofages" as Molière called them, who having nothing to do themselves will allow no one to do anything either.†

THE THEMES OF THE "NEW" LITERATURE

The physician interested in writing literature has one thing in his favor: the fondness of former times for stories of distant lands entailing long sea journeys has

---

* No writer in history wrote so much and so fast as Félix Lope de Vega. He averaged more than twenty sheets a day all his life and wrote more than 400 plays in less than twenty-four hours each. He wrote books in prose and poems by the hundreds, ranging from religious sonnets to light odes. But, above all, he wrote plays—*more than 2200!* They include 1800 plays and more than 400 *autos sacramentales* or religious plays. For over half a century, Lope de Vega, "*el mónstruo de la naturaleza*" (nature's "monster") satisfied world audiences from Mexico to the Sultan's seraglio at Constantinople. He alone created an entire literature like the force of nature he was.

† In "Books in the Physician's Life" by Félix Martí-Ibáñez, M.D., op. cit.

disappeared. We still remember the France of Balzac, the Italy of Mazzini, the Russia of Tolstoi, the Spain of Cervantes; but the vehicles that brought them to us, those long volumes of yesteryear, have all but vanished, except maybe for some historical novels which provide modern man's escape on the plane of time just as the aforementioned long tales provided escape from the limitations of space.

Formerly reading was the only road to dreamland. Nowadays there is the cinema and television. Then there are the complexities of modern life which leave no time for lengthy stories nor the peace of mind for following the comings and goings of a vast number of characters. The present trend toward the short novel was anticipated a long time ago by Chekhov when he stated, "The art of good writing is the art of abbreviation."

Today people crave to explore the landscape of the mind, the jungle of the instincts, the wildwoods of all the passions. No one is better prepared than the physician to satisfy this craving. Man today anxiously searches for man. Beyond anything else, he is interested in dissecting, fiber by fiber, the human soul on the smooth marble slab of succinct, lucid writing. The mature man of today prefers to read about real human beings rather than about fictitious characters, as in former days. This psychologic preoccupation in today's art is not merely a token of the impact of Freud; it is also a proof of the "intrahumanization" of art. The literature of today is studded with hearts throbbing with the same immortal stimuli—love, jealousy, power—that throbbed behind the tightlaced stays of the women portrayed by the Impressionists.

No one indeed is so apt as the physician for writing the naturalistic, experimental, psychologic literature craved by people today, which shrouds the mystery that lies behind our present age.

The most successful novels still rely on a few worthy literary themes—the vagabond, the return of Ulysses to Penelope, the damnation of Faust, the quest of Don Quixote, the conflict of Hamlet, the journey to eternity in the Divine Comedy. These themes recur time and again, for they are archetypes with a universal appeal and a firm hold on the human mind. Nor is there anybody better equipped than the physician to know and explore these archetypes in literature.*

MINERVA AND AESCULAPIUS

Our age is still witnessing the antagonism between Truth and Beauty, Minerva and Venus, incarnate in the antinomic conflict (so brilliantly outlined by my teacher, the psychiatrist, Emilio Mira) between artists interested in form and the incommensurable, whose tool is passion and whose goal is beauty, and scientists inter-

* "It helps a man immensely to be a bit of a hero worshipper, and the stories of the lives of the masters of medicine do much to stimulate our ambition and rouse our sympathies. If the life and work of such men as Bichat and Laënnec will not stir the blood of a young man and make him feel proud of France and of Frenchmen, he must be a dull and muddy-mettled rascal. In reading the life of Hunter, of Jenner, who thinks of the nationality which is merged and lost in our interest in the man and in his work! In the halcyon days of the Renaissance there was no nationalism in medicine, but a fine catholic spirit made great leaders like Vesalius, Eustachius, Stenson and others at home in every country in Europe."—Osler, *Aequanimitas and Other Essays*

ested only in the measurable and the substantial, whose tool is logic and whose goal is that truth as they see it shall be made incontrovertible. Each of them from his lofty ivory tower is hampering the progress of science and art.

Pure art has become dehumanized and abstract or industrialized and strictly utilitarian. The artisan is replacing the artist. A similar occurrence in science is responsible for today's "pure" scientist and the scientific technician. Nevertheless, in pure science, research does reach a point where intuition is of more avail than reason and where there is a need for that passion which Pavlov recommended as an essential quality in the man of science.

Science and art can and must help each other, as has indeed already happened in the field of the cinema, in functional architecture, and in applied psychology. It is imperative to bind and bind again the scientist and the artist. Let us not forget that the inner meaning of the word "religion" (from the Latin *religare*) is to bind the human mind to that which is essential for its spiritual life.

Minerva and Aesculapius must come together again, as they were originally in the brain of Jupiter. From the union of Minerva and Aesculapius, from a Medicine accepting the principles and ideals of art, and from an Art accepting the experimental method and the humanism of Medicine, there shall arise the physician who will reconcile learning with kindness, reason with passion, and truth with beauty.*

If the physician will add writing to his other tasks, and if he will read and write outside the limits of his particular professional field, he will find himself looking with newly opened eyes upon the wonderful world around us. He will gain a dramatic sense of existence which he will apply to his professional life, just as he will bring to his literary work the sound experimental, naturalistic judgment he has gained from medical training. The physician of today, if he is to help the physician of tomorrow, must learn to speak to them through written words—more and better words. The physician of today can make it possible for Minerva and Aesculapius together to guide him in the performance of his professional duties and in the assertion of his creative rights. Together they can point to him the path at the end of which proudly stands the physician-artist of the future.

BIBLIOGRAPHY

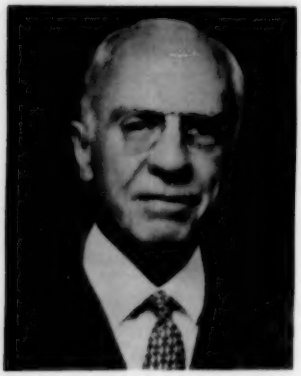
1. Anon.: Anton Chekhov, physician and literary artist, Clin. Excerpts *19*:99, 1945.
2. Anon.: Dr. Oliver Goldsmith (editorial), Clin. Excerpts *19*:35, 1945.
3. Anon.: Doctors as writers (editorial), J. A. M. A. Spectrum *157*:24, March 5, 1955.

* "Imagine a man applying himself to study the first principles of medicine. . . . He learns by precept and example how to distinguish clearly the evident from the obscure, the false from the true. . . . He builds for himself a clear idea of the human frame. To this he adds a knowledge of the vital fluids; and tests it in the living person and his excretions by the aid of anatomy, chemistry, hydrostatics and even of the microscope. . . . Now he opens and explores the bodies of those whose maladies he has noted; now he studies the disease he induces upon animals; again he groups together all the results of diseases and of remedies he has tried; again he learns the same things from the best authors; finally, arranging and pondering, he adjusts all things to one another, and, by the means which Theory has shown, he obtains at length a certain grasp of the history and cure in each disease. See then before you the finished picture of the perfect doctor!" —Herman Boerhaave, *Institutiones Medicae*, 1708.

4. Anon.: Editorial, St. Thomas's Hosp. Gaz. 53:61, April, 1955.
5. Anon.: François Rabelais, M.D. (editorial), Brit. M. J. 1:831, April 11, 1953.
6. Anon.: Humanism in modern medicine (editorial), Quart. Bull. Northwestern Univ. M. School 25:176, 1951.
7. Anon.: John Keats (1795–1821) (editorial), Clin. Excerpts, p. 3.
8. Anon.: Medical journalism (editorial), J. Internat. Coll. Surgeons 26:118, July, 1956.
9. Anon.: Oliver Wendell Holmes (editorial), Clin. Excerpts 19:131, 1945.
10. Anon.: William Somerset Maugham: his career and medical background (editorial), Clin. Excerpts 19:259, 1945.
11. Bayon, H. P.: René Descartes, 1596–1650. A short note on his part in the history of medicine, Proc. Roy. Soc. Med. 43:783, April 5, 1950.
12. Carballo Roy, J.: El Hombre desde su Enfermedad, Valencia, Archivos, p. 185.
13. Carter, H. S.: Medicine and literature, Glasgow M. J. 30:147, April, 1949.
14. Carter, H. S.: Eccentrics in medicine, Glasgow M. J. 34:259, June, 1953.
15. Carter, H. S.: Robert Burton and "The anatomy of melancholy," Glasgow M. J. 35:202, Aug., 1954.
16. Carter, H. S.: Dr. François Rabelais, Glasgow M. J. 36:267, Aug., 1955.
17. Dingle, H.: René Descartes, Nature 165:213, Feb. 11, 1950.
18. Harnsberger, C., Editor: The Lincoln Treasury, Wilcox and Follet.
19. Hillman, C. C.: Observations on tropical medicine in the United States Army, Clin. Excerpts 19:139, 1945.
20. Jordan, S. M.: Medicine and the doctor in word and epigram, New England J. Med. 248:875, May 21, 1953.
21. Kimbrough, R. A., Jr.: The physician in current fiction, Am. J. Obst. & Gynec. 65:472, March, 1953.
22. Marañon, G.: Estudios de endocrinologia, Madrid and Buenos Aires, Espasa-Calpe, 1940.
23. Marañon, G.: Les ideas biológicas del Padre Feijoó, Madrid and Buenos Aires, Espasa-Calpe, 1941.
24. Marañon, G.: Cajal, Madrid and Buenos Aires, Espasa-Calpe, 1951.
25. Marañon, G.: La medicina y nuestro tiempo, Madrid and Buenos Aires, Espasa-Calpe, 1954.
26. Marañon, G.: Efemérides y comentarios, Madrid and Buenos Aires, Espasa-Calpe, 1955.
27. Marti-Ibañez, F.; Sackler, A. M.; Sackler, M. D., and Sackler, R. R.: The quest for Freud, J. Clin. & Exper. Psychopath. & Quart. Rev. Psychiat. & Neurol. 17:117, April-June, 1956.
28. Mouchot, G.: Co-operation in the profession, Letter from France, p. 447.
29. Plitchet, A., and Plitchet, P.: Shakespeare et ses connaissances en médecine, Presse méd. 53:no. 86, 1945.
30. Quennell, P.: Writer and physician: a literary alliance? Med. World 84:443, May, 1956.
31. Roberts, F.: Lingua medica, a study in medical semantics, Brit. M. J. 1:1444, June 27, 1953.
32. Sigerist, H.: La enfermedad en la literatura. *In:* Civilización y Enfermedad, Mexico, Fondo de Cultura Económica, 1943.
33. Sigerist, H.: The historical aspect of art and medicine, Bull. Inst. Hist. Med. 4:271 (April) 1936.
34. Vallery-Radot, P.: Un evadé de la médecine—Eugéne Süe, Presse méd. 62:1677, Dec. 1, 1954.
35. Vaultier, R.: La médecine dans Madame Bovary, Presse méd. 62:825, May 26, 1954.
36. Vilar, E.: El médico en la literatura, Valencia, Archivos, 1953, p. 18.
37. Warren, R.: François Rabelais, New England J. Med. 253:376, Sept. 1, 1955.
38. Wechsler, I. S.: S. Weir Mitchell, Neurology 5:242, 1955.

Biographical Notes on the Contributors to the Symposium on Medicine and Writing

Dr. Russell L. Cecil was born in Nicholasville, Kentucky, in 1881; he studied at Princeton University and received his medical degree from the Medical College of Virginia. During World War I he served as a major in the Army Medical Corps, and was director of the laboratories at Camp Upton in New York and at Camp Wheeler in Georgia. From 1917 to 1919 he was head of the Surgeon General's Commission to Study Pneumonia, a serious problem among service personnel at the time, and it was during this assignment that he and his associates won wide recognition for being the first to use prophylactic vaccine against pneumonia.



Dr. Cecil came into prominence some 25 years ago when he wrote and edited his now famous *Textbook of Medicine*. He is now working on the tenth edition of his book, which was first published in 1926; today nearly 90 per cent of all medical schools in the country use it as a required text. It has been translated into several languages including Spanish, Italian, and Portuguese.

Dr. Cecil was named national medical director of The Arthritis and Rheumatism Foundation in 1954. He still conducts his medical practice, dividing his time equally between his patients and the Foundation.

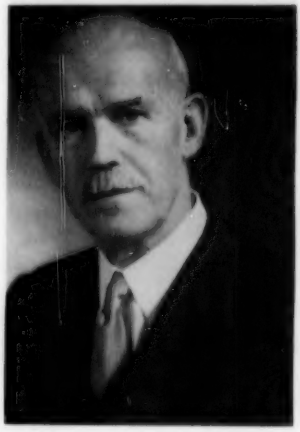
Dr. Morris Fishbein studied at the University of Chicago, receiving his medical degree from Rush Medical College in 1912. At the time of his graduation, he received the Alumni Fellowship in Pathology and became associated with Drs. Ludvig Hektoen and E. R. LeCount in medical research. He also served as house physician in the Durand Hospital of the McCormick Institute for Infectious Diseases. In August 1913, he became assistant to Dr. George H. Simmons, editor of the *Journal of the American Medical Association*, which position he held up to 1924, when he was elected editor to succeed Dr. Simmons.

Dr. Fishbein has made many significant contributions to medical and lay literature, including the *Saturday Evening Post*, *Good Housekeeping*, *The Reader's Digest*, *Woman's Home Companion*, and *Collier's*. He is author of *Medical Writing: The Technic and the Art* (third edition, 1950), *Popular Medical Encyclopedia* (1956), *Handy Home Medical Adviser* (1953), and many other books for professional and lay readers, and he edited *New Advances*

in Medicine (1956), *Successful Marriage* (1955), *Doctors at War* (1945), and many other books.

Dr. Fishbein is Consultant Medical Editor to Doubleday & Company and the Blakiston Company and Medical Editor of the *Encyclopaedia Britannica* and the *Britannica Book of the Year*. He is also Editor of the *Bulletin of the Society of Medical History of Chicago*, a member of the Board of Chief Editors of *Excerpta Medica*, and Contributing Editor to *Postgraduate Medicine*. He also holds two teaching positions and serves on a number of hospital boards and health committees.

Dr. Douglas Guthrie was born at Dysart, Fife, Scotland, in 1885, the son of Rev. William Guthrie, and was educated at the Royal High School of Edinburgh and at Edinburgh University, where he graduated in 1907, obtaining, later, the higher diplomas of M.D. and F.R.C.S.Ed. After a further year of study on the Continent, and three years in country practice, he specialized in otolaryngology and for the next 30 years he taught and practiced in Edinburgh with conspicuous success. He was especially interested in the otolaryngology of childhood, for the study of which his appointment at the Royal Hospital for Sick Children gave him ample scope. He also investigated the disorders of speech and voice, being an early and ardent pioneer of what is now known as "speech therapy." He edited Logan Turner's *Diseases of the Nose, Throat and Ear*, Gray's *History of the Royal Medical Society*, and Lind's *Treatise of the Scurvy*, and published, along with Dr. Seth, a treatise on *Speech in Childhood*, besides writing numerous papers on otolaryngology.



He served as a specialist in both World Wars, in the Army and Air Force, and for the past 10 years his many activities have included his duties as Hon. Librarian to the Royal College of Surgeons of Edinburgh, and as Curator and Librarian to the Royal Society of Edinburgh, of which he is a Fellow.

Retiring from practice in 1945, Dr. Guthrie devoted all his time to the history of medicine, and published the well known work, *A History of Medicine*, on which he had been engaged for 10 years. The book still enjoys a wide circulation, and has been translated into Spanish, French, and German. Other successful works were his *Lord Lister, His Life and Doctrine*, and, with Dr. Scott Stevenson, his *History of Otolaryngology*. Furthermore, he has written more than 70 articles on various aspects of the history of medicine.

Dr. Guthrie has traveled widely in many lands. His tour of Mexico, Guatemala, and Peru, in 1948, when he gave a number of lectures in Spanish, was greatly appreciated. More recently, in 1953-1954, accompanied by his wife Jean, who shares his enthusiasm, he visited New Zealand and Australia, and, on the homeward journey, spent 11 weeks in the United States, delivering many lectures, including the Clen-

dening Lectures at the University of Kansas, which have since been printed in book form under the title *From Witchcraft to Antisepsis*.

Last year, as President of the Harveian Society of Edinburgh, he chose as the subject of his oration, "Harvey in Space and Time." Recently he has been elected President of the Section of History of Medicine, Royal Society of Medicine, London, a Section founded by Sir William Osler in 1912. Dr. Guthrie is himself the founder of a Society, the Scottish Society of the History of Medicine. This Society, of which Dr. Guthrie was the first President, in 1948, continues to flourish and produces an annual report of its activities.

Dr. Joseph Garland was born Jan. 1, 1893, in Gloucester, Massachusetts, and he received his medical degree from Harvard Medical School cum laude in 1919. He practiced pediatrics in Boston from 1922 to 1948. Formerly instructor in pediatrics at Harvard Medical School, Dr. Garland has been on the staff of the Massachusetts General Hospital since 1922 and on its Board of Consultation since 1953.

Dr. Garland has been editor of the *New England Journal of Medicine* since 1947 and is Consultant Editor in the United States of the London *Practitioner*. He is author of *The Doctor's Saddlebag* (1930), *The Youngest of the Family* (1932), *The Road to Adolescence* (1934), *The Story of Medicine* (1949), and he edited *The Physician and His Practice* (1954).

Dr. John F. Fulton was born in St. Paul, Minnesota, in 1899. Failing his Harvard entrance examinations, he studied one year at the University of Minnesota following which he entered Harvard after a period of military service at Fortress Monroe. He graduated magna cum laude in 1921 and went to Oxford the same year as a Rhodes Scholar. In 1925 he returned to the Harvard Medical School, where he worked for two years in Dr. Harvey Cushing's clinic. He received his medical degree magna cum laude in 1927, and after a year as one of Dr. Cushing's House Officers, he returned to Oxford where he became a Fellow of Magdalen with attachment to Sir Charles Sherrington's Laboratory of Physiology.

Dr. Fulton's bibliography of more than 400 publications in the fields of physiology and medical history was published in a special number of the *Yale Journal of Biology and Medicine* issued in his honor in January of this year.

Dr. Fulton retired as Sterling Professor of Physiology in the Yale University School of Medicine in 1951 in order to take on a new post as Sterling Professor of the History of Medicine, also at Yale, where he is developing his inspiring research work in that field and in medical education.

Dr. Félix Martí-Ibáñez is Director of the History of Medicine Department and Professor of the History of Medicine at New York Medical College, Flower and Fifth Avenue Hospitals. He is Editor of the INTERNATIONAL RECORD OF MEDICINE, Associate Editor of ANTIBIOTICS & CHEMOTHERAPY and ANTIBIOTIC MEDICINE & CLINICAL THERAPY, and International Editor of the JOURNAL OF CLINICAL AND EXPERIMENTAL PSYCHOPATHOLOGY.

Dr. Martí-Ibáñez was born in Cartagena, Spain, and received his Doctorate in Medicine from the University of Madrid. Until 1939, he practiced psychiatry in Barcelona and taught medical history. He also edited several medical and literary journals and published two novels and several books on the history of medicine and psychology.

In 1937 Dr. Martí-Ibáñez was appointed General Director of Public Health and Social Service of Catalonia, and later became Under-Secretary of Public Health and Social Service in the Spanish Government. He officially represented Spain at the World Peace Congresses held in Geneva, New York, and Mexico City. He was wounded while serving as a major in the Medical Corps of the Spanish Air Force.

After his arrival in the United States in 1939, Dr. Martí-Ibáñez held positions as Medical Director with three leading pharmaceutical concerns. He also lectured in many Latin American universities and was made an honorary member of 15 medical, historical, and psychiatric associations.

He participated in the International Congresses of History of Medicine, History of Science, Psychology, and Psychiatry held since 1950 in Amsterdam, Paris, Stockholm, Nice, and Rome, and he has published many papers on psychiatric and medical-historical subjects in American and European medical journals.

A Fellowship was awarded to Dr. Martí-Ibáñez by the American Medical Writers' Association at their annual meeting last year. Also, he was recently honored, by unanimous decision of the National Academy of Sciences of Cuba and by decree of the Government of Cuba, with the Order of Carlos J. Finlay in recognition of his scientific and educational work in medicine. He is a member of the Foreign Press Association and the Stage and Screen Foreign Press Club and contributes columns to Latin American newspapers. Articles and short stories by Dr. Martí-Ibáñez have appeared in *Esquire*, *Town and Country*, *Gentry*, *Art & Architecture*, and fantasy story magazines. He is now writing the 16,000 word section on the History of Medicine for the new edition of *Encyclopedia Americana*.

On Medicine and Writing

In this Symposium on Medicine and Writing, the INTERNATIONAL RECORD OF MEDICINE AND GENERAL PRACTICE CLINICS fires another salvo in its war for better writing in the medical profession. Rich advice is given on the editing of medical textbooks by DR. CECIL, the doyen of textbook editors. Drawing on his experience with his *Textbook of Medicine*, used as the standard textbook by many leading medical schools, he offers many important suggestions concerning selection of the editor and contributors, editing of the text, and special problems that arise with a book of this type.

With his customary incisiveness, DR. FISHBEIN belabors the prevalent use of jargon in medical writing. He cites many lucid examples to emphasize the principle set down in his excellent book on *Medical Writing:* "Whenever a writer feels an impulse to perpetrate a piece of exceptionally fancy writing, he should obey it, but should delete what he has written before sending the manuscript to press."

The value of medical history, a subject too often neglected in modern medical training, is scholarly stressed by DR. GUTHRIE, Scotland's eminent medical historian. He concludes his paper with a plea for "more and more contributions to the history of medicine. . . . By this means, we may have an opportunity of viewing the past history of medicine in each country and . . . of drawing the nations together by the fascinating story of each other's heritages. As has been proved time and again, without a knowledge of the past, we are ill equipped to face the future."

Simplicity is emphasized by DR. GARLAND as "the keynote of good literary communication." However, he points out, there has been a tendency to overdo simplicity to the point where "abbreviations trickle from the moving fountain pen like water dribbling from a leaky faucet." This is illustrated by several interesting examples, which also demonstrate the use of "protective jargon"—attacked by Dr. Fishbein in his paper.

An admirable dissertation on the principles of bibliographic citation is presented by DR. FULTON, whose work should become a standard text for aspiring medical authors.

The over-all historical and psychologic union between Minerva and Aesculapius is richly documented by DR. MARTI-IBAÑEZ, who believes that through this union the principles and ideals of art will be fused with the experimental method and the humanism of medicine. He also discusses the bond between medicine and literature and stresses the common roots in history of the physician and the writer.

It is hoped that used with the Symposium on Medical Writing,* recently published as a monograph, the wide scope of this new symposium might make it a useful contribution to the field of medical communication.

---

* Symposium on Medical Writing, New York, MD Publications, Inc., 1956.

CANCER TREATMENT. A synchrotron capable of generating a roentgen ray beam of 70,000,000 volts is being applied experimentally in the treatment of human cancer at the University of California Medical Center, San Francisco. Dr. Robert S. Stone, chairman of the Department of Radiology and director of the Radiological Laboratory, stated that the machine can deliver a specified dose of radiation to any depth in the body.

HEARING STUDY. New York University-Bellevue Medical Center has received a grant of $82,000 from the Alfred P. Sloan Foundation, Inc., in support of a proposed project to learn more about the causes of deafness. Director of the hearing project will be Dr. Joseph E. Hawkins, Jr.

NEW IRON LUNG. Under the supervision of Randolph Batson, associate professor of pediatrics, Vanderbilt University, Nashville, Tenn., an iron lung is being developed that will automatically adjust itself to a patient's rate and depth of breathing. The key to the device is the use of electrodes from which electric connections will lead from the patient to a controller in the iron lung.

GRANT FOR PSYCHIATRIC RESEARCH. The Ford Foundation has awarded a grant of $3,682,000 to the Foundations' Fund for Research in Psychiatry, which will be expended during a five year period to support a program for the development of research personnel in mental health. The grant will be maintained concurrently with the FFRP's present program of research grants in the field of psychiatry and related sciences. A brochure describing stipends, fellowships, and research teaching grants may be obtained by writing to the Foundations' Fund for Research in Psychiatry, 251 Edwards Street, New Haven 11, Conn.

RAGWEED STUDY. Botanists at the University of Michigan are studying the common ragweed plant as part of a five year program on hay fever. The project, sponsored by the National Institutes of Health, will ultimately reveal how and where the plant forms the substance to which many persons are allergic and how this substance is discharged into the atmosphere on particles of pollen.

DRUGS FOR KIDNEY STONES. Drugs to prevent or dissolve kidney stones will be studied at Georgetown University, Washington, D. C., under a grant of $22,949 from the National Foundation for Infantile Paralysis. The group, under the direction of Martin Rubin, executive head of the Chemistry Department, is undertaking a systematic study of chemical agents capable of dissolving calcium salts in the urinary tract.

CONGRESS FOR PSYCHIATRY. The 2nd International Congress for Psychiatry will take place in Zurich, from Sept. 1 to 7, 1957. The subject selected as the main theme of the Congress is: The Present Status of Our Knowledge about the Group of Schizophrenias. The International Committee for Group Psychotherapy also proposes to hold a meeting in Zurich on Aug. 30 and 31, 1957. Further information may be obtained from the General Secretary: Prof. Dr. Med. J. Wyrsch, (until Dec. 31, 1956) Stans/NW, Switzerland; (as of Jan. 1, 1957) Lenggstrasse 28, Zurich 8, Switzerland.

A.M.A. CLINICAL MEETING. The 10th A.M.A. Clinical Meeting will convene in Seattle, November 27 to 30. The program is comprised of lectures, clinical conferences, and scientific and technical exhibits. For information write to the American Medical Association, 535 North Dearborn Street, Chicago 10, Ill.

LECTURE SERIES. The Jewish Hospital of Brooklyn, 555 Prospect Place, Brooklyn 38, has launched an annual lecture series, to be held in the Dr. Leon Louria Memorial Auditorium at the hospital, to which physicians are invited. On Jan. 22, 1957, a panel discussion on "Supervoltage Therapy" will be held, and on April 23, 1957, at 8:30 P.M., Dr. Hans Selye will discuss "Stress."

CHILD CARE. The National Council on Infant and Child Care, Inc., has been established by 17 leaders in pediatric medicine to "perform a constructive editorial role in public education in matters concerned with the care of infants and children." Dr. Allan M. Butler, professor of pediatrics of Harvard Medical School and chief of the Children's Medical Service of Massachusetts General Hospital, Boston, will serve as president of the Council, an independent and nonprofit organization whose headquarters are located in the New York Academy of Sciences Building, 2 East 63 Street, New York City. Dr. Margaret Lyman is educational director.

Clinical Experiences with Pipradrol and a Pipradrol-Reserpine Combination

Sidney Cohen, M.D.

MEDICAL SERVICE, NEUROPSYCHIATRIC HOSPITAL, VETERANS ADMINISTRATION CENTER
LOS ANGELES, CALIF.

The observation that pipradrol [α-(2-piperidyl) benzhydrol hydrochloride] (Meratran*) produced coordinated overactivity in animals[2] and an alerting pattern on the electroencephalogram[9] prompted its trial in the depressions and emotional fatigue states of man.[3] Since this compound was one of a pharmacologic series without previous application to psychiatric chemotherapy, it seemed worth while for us to explore the borderlands of effectiveness of this drug.

Fabing et al[3, 4] concluded that the indications for pipradrol were roughly similar to those for the amphetamines, but that pipradrol lacked their sympathomimetic and pressor actions. He also reported that sleep and appetite were less disturbed and that when anxiety was mobilized it was less severe than that experienced with the amphetamine series. It was his impression that up to 90 per cent of patients with fatigue and reactive depressions responded favorably, and that a majority of patients with endogenous depressions were improved. In agitated depressions the drug was contraindicated. These observations have been verified by others.[1, 5, 8, 10] In a double-blind study with a small group of depressed or withdrawn psychotic patients, Schut and Himwich[11] found pipradrol useful in those patients with psychomotor retardation and restriction of interest, but delusional and anxiety patterns were intensified.

It was our desire to verify these clinical impressions and to delineate further the areas of pipradrol's efficacy. Furthermore, we wanted to test the utility of a pipradrol-reserpine combination in instances of mixed depression and anxiety. Such patients are common problems in medical practice and might not respond well to either drug alone. Reserpine may increase the depression and pipradrol could accentuate the tension state.

Initially, pipradrol was given to a "normal" group of physicians, psychologists, and other hospital employees in daily dosages of 1 to 4 mg. Two types of reactors were recorded. A majority of this group noted an increased sense of well-being. Diminished fatigue and decreased reaction time without impairment of judgment were described. A minority reported an unpleasant increase in tension. In general, this latter group were known to be inherently more tense than their colleagues.

A number of our subjects had taken amphetamine or one of its congeners in the past. They were asked to compare the effects of these drugs with pipradrol. Most regarded their actions as similar. A few favored the amphetamine group because it

---

Presented before the Section of Psychiatry and Neurology at the 85th Annual Session of the California Medical Association, Los Angeles, April 29-May 2, 1956.

* The trade name of The Wm. S. Merrell Co. for pipradrol, [α-(2-piperidyl) benzyhydrol hydrochloride] is Meratran.

made them more exhilarated. Others preferred pipradrol because it was "gentler" or "smoother." A not uncommon description of the pipradrol effect was: "I feel like I do on one of my better days."

In February and March 1955, an outbreak of influenza occurred in Los Angeles. This epidemic was remarkable in that, although the acute phase of the illness subsided promptly, an extreme degree of asthenia was present during the convalescent period. Marked muscle aching and weariness, fatigability on slight exertion, or mild depression persisted for one to three weeks. Twelve of our hospital personnel with this syndrome were selected and given 1 to 3 mg. of pipradrol on arising. All were able to resume their work effectively after the first dose. They no longer complained of exhaustion and were grateful for the relief of their symptoms. Two of them stopped the medication after the third day and experienced a return of the post-influenzal fatigue state. Resumption of the drug was again associated with improvement. After 10 days pipradrol could be discontinued without relapse.

There was no decrease in weight in our employee group so that caloric intake during pipradrol therapy was apparently unaffected. Some noted less "need" to eat. Although their usual dietary patterns were maintained, they believed that part or all of a meal could easily have been omitted. We have since found that a combination of pipradrol and a weight-reducing diet results in a satisfactory weight loss in those obese individuals who overeat as a response to boredom, occult depression, or frustration. Recently, carefully controlled studies[6, 7] have confirmed this impression.

On the other hand, a patient who became depressed and refused to eat following a partial hepatectomy for a vascular tumor of the liver was given 2 mg. of pipradrol daily. He quickly became more cheerful, and his weight, which had dropped to 87 pounds despite parenteral feedings, rose to 92 pounds in two weeks. He gradually regained his preoperative body weight of 120 pounds during the following three months. It is not unlikely that if the mood disorder is corrected, the same drug may cause the obese to lose and the undernourished to gain weight.

Parenteral pipradrol alone or in combination with a barbiturate was given before meals to those catatonic patients who would not swallow food and who ordinarily required tube feedings. Many of them proceeded to eat or, at least, to accept spoon feedings. This has resulted in a gratifying decrease in the time required to maintain the nutrition of these patients who are feeding problems.

We now felt familiar enough with the drug to attempt an evaluation of its effect in a variety of psychiatric states. Pipradrol was given to a total of 154 patients, all of them so emotionally ill that they required psychiatric hospitalization. This report does not include those mildly depressed individuals who are satisfactorily managed in office practice or in an outpatient clinic. According to the previous studies cited, it is in this group that the most favorable responses to pipradrol can be anticipated.

RESULTS

1. *Chronic Schizophrenia.* Fifty-two regressed psychotic patients with apathy and lack of motivation were selected and given 3 to 15 mg. of pipradrol daily for three weeks. Only 4 of our subjects showed a marked improvement during this period.

Of these, 3 had been using hypersomnolence as a part of their psychotic defenses. While under treatment they became more alert and could benefit from psychotherapeutic interviews. In the remainder there was either no change or an undesirable increase in agitation.

2. *Senile Psychosis.* Of the 26 patients in this group, most were emotionally labile, with depression as the major component of the mood disorder. They appeared expressionless or forlorn and wept easily. In only 4 could substantial benefit from pipradrol be discerned.

3. *Manic-Depressive Psychosis.* Sixteen manic-depressives were treated with up to 15 mg. of pipradrol daily. Five of these patients were made more alert with pipradrol, and placebos could not sustain this improvement.

4. *Character Disorders.* Pipradrol was ineffectual in 16 patients with a variety of character disorders associated with depressive features. Five of this group were epileptic. Pipradrol did not increase the frequency of their seizures.

5. *Involutional Melancholia.* In the 12 patients with involutional melancholia, encouraging results were noted. These patients were all being worked up for electroconvulsive therapy. Five patients eventually required shock treatments. Five others improved on pipradrol to the point where they could be discharged. Two patients remitted on a combination of pipradrol and chlorpromazine.

6. *Neurotic Depressions.* When the depression and somatic complaints were long-standing, no significant effect was seen with pipradrol. Less chronic endogenous depressions were more amenable to therapy. One third of the 21 patients improved, some with complete remissions.

7. *Reactive Depressions.* Our best results were obtained in the 11 patients in whom the depression was secondary to an obvious situational factor, such as a physical illness, major surgery, death of a loved one, or a financial disaster. All these patients showed some measure of improvement with a course of pipradrol; in 9 this drug alone produced a remission.

8. *Anxiety and Depression.* An investigation of 24 patients with mixed anxiety and depression or in an agitated depression was then conducted. A double-blind study was designed of randomized one week courses wherein a placebo, 1.5 mg. of reserpine, or 1.5 mg. of reserpine and 6.0 mg. of pipradrol (6 tablets of pipradrol with reserpine*) were administered daily. These patients were evaluated clinically and with weekly batteries of psychologic and mechanical aptitude tests. These tests included the Minnesota Clerical, the MacQuarrie Mechanical Ability, Digit Span, Word Fluency, Future Autobiography, Draw-A-Person, and an Ethnocentrism Attitude Scale. The results will be reported elsewhere, but statistical analysis has revealed no significant change in performance. Judgment values were neither impaired nor improved.

From table I it appears that a pipradrol-reserpine combination seemed effective in this small, selected group of moderately or severely depressed and anxious patients. It is our present belief, however, that in those patients with mixed anxiety and depression, the administration of reserpine until its effect is established before com-

* Each pipradrol with reserpine tablet contains 1.0 mg. of pipradrol and 0.25 mg. of reserpine.

TABLE I

Comparison of Effects of Pipradrol with Reserpine, of Reserpine, and of a Placebo in 24 Patients

	Pipradrol with reserpine	Reserpine	Placebo
No change or worse	4	10	14
Slight improvement	9	10	7
Definite improvement	11	4	3

mencing pipradrol therapy is a rational approach because of the delayed action of oral reserpine. It is also preferable to individualize the amount of these two agents for each patient.

A number of problems were encountered during this study that should be discussed for they relate to all controlled drug investigations on psychiatric patients. The double-blind technique is a desirable clinical method since personal bias and patient suggestibility are eliminated. Nevertheless, in the emotionally ill patient it is not quite ideal for two reasons. For example, an acutely depressed patient may improve under a short course of some potent drug, and that improvement may be maintained after the agent has been discontinued and a placebo substituted. In estimating the effects of treatment in this individual, one would be forced to conclude that the placebo and the drug were equally effective. A second source of possible error lies in the rigid dosage schedule that is implicit in double-blind studies. The amount of the drug chosen is usually the average dose; this may be not enough or too much for a substantial number of the participants and it cannot be adjusted in brief trials. Thus the result of double-blind experiments may be skewed to the disadvantage of the test drug. These points are mentioned because they seemed to apply to individual patients in our study.

SIDE EFFECTS

The occasional increase in jitteriness produced by pipradrol in predisposed individuals has been mentioned. One of our prepsychotic patients with considerable anxiety, depression, and somatic complaints became psychotic while this drug was being given. She recovered with electroconvulsive therapy. Although most investigators have not considered sleeplessness a problem, about 20 per cent of our subjects complained of insomnia. For this reason the daily dose was given on arising. This is especially helpful to the person who feels most tired immediately after awakening. If the number of tablets exceeds 4, half are administered after arising and half at noon. Anorexia was no problem in this series. Blood counts, urinalyses, blood urea nitrogen, thymol turbidity, and cephalin flocculation tests were unchanged during pipradrol therapy. Electrocardiograms demonstrated no change in rate or configuration of the complexes. Blood pressure determinations revealed no significant variation from base line readings.

Case 1. A 32 year old recently divorced white woman was transferred to the Brentwood Neuropsychiatric Hospital because she had made statements about possible self-destruction. Since her divorce three months previously she had been eating poorly. One month before admission she had recovered from pneumonitis and eight days prior to entry had had a tonsillectomy.

When first seen she was tearful, tremulous, and forlorn. There had been one previous bona fide suicidal attempt. Her life pattern was that of a markedly neurotic individual.

While awaiting permission for electroconvulsive therapy from her next of kin, she was given 6 pipradrol with reserpine tablets daily. During the next 36 hours her depression lifted and the agitated behavior was improved. She was taken off suicidal status five days later. The electroconvulsive treatments were never administered. The pipradrol-reserpine combination was discontinued two weeks after admission, but had to be resumed when tension and dejection reappeared. On the thirty-fifth day all medication was stopped, and on the forty-seventh day the patient was discharged.

Comment. A depressive reaction superimposed on a definitely unstable and immature personality was controlled coincident with pipradrol-reserpine therapy. Superficial psychotherapy was given during the later part of the hospital course to provide some measure of insight into the patient's emotional reaction patterns.

Case 2. This 47 year old married woman had become increasingly depressed and fearful during the eight months previous to admission. Her husband's business reverses, the possibility that she might lose her own job, and the problems involved in caring for her senile mother were the immediate causes of her disturbed emotional state. She had been sleeping poorly and had lost 15 pounds of weight.

On admission, she was observed to be depressed and restless during the day and sleepless at night. Preoccupation with suicidal thoughts was admitted, but she also mentioned fears of death. She expressed the beliefs that there was nothing to live for, that she was a failure, and that there was no way out.

Two hundred mg. of chlorpromazine, 6 mg. of pipradrol, and a small amount of barbiturates at bedtime were given daily. The preliminary work-up for electroconvulsive treatments was initiated but was found to be unnecessary because of a marked improvement during the following two days. After one week, pipradrol with reserpine, 6 tablets daily, was substituted. The patient was taken off suicidal precautions and allowed to go home on week-end passes. One month after admission she was discharged without medication.

Comment. In this patient multiple situational stresses and probably involutional factors produced an agitated depression that responded to chlorpromazine and pipradrol. Once the disabling emotional upheaval was controlled she was able to understand and adjust to her problems.

CONCLUSION

Pipradrol is a valuable agent in the psychogenic and physiologic fatigue states. In both obesity and undernutrition due to underlying depression, satisfactory results have been obtained. Its value in the schizophrenic syndromes, the senile psychoses, and the character disorders is minimal. It may be tried in involutional melancholia and neurotic depressions with strikingly good effect in individual instances. The reactive depressions respond satisfactorily to a course of this drug. It has also been used successfully to overcome the depression and immobilization that the tranquilizing agents can induce. Combinations of pipradrol and reserpine have merit in the treatment of the patient with mixed anxiety and depression. The anxiety should be contained with prior reserpinization.

In conclusion, pipradrol appears to be a safe and effective alerting drug with antifatigue and antidepressant effects in nonpsychotic patients.

BIBLIOGRAPHY

1. Antos, R. J.: A preliminary report of clinical studies on a new stimulant, Arizona Med. *11*:397–399 (Nov.) 1954.

2. Brown, B. B., and Werner, H. W.: Pharmacologic studies on a new central stimulant, α-(2-piperidyl) benzhydrol hydrochloride (MRD-108), J. Pharmacol. & Exper. Therap. *110*:180–187 (Feb.) 1954.
3. Fabino, H. D.: Clinical experience with Meratran (a new central nervous system stimulant), Dis. Nerv. System *16*:10–15 (Jan.) 1955.
4. Fabino, H. D.; Hawkins, J. R., and Moulton, J. A. L.: Clinical studies on α-(2-piperidyl) benzhydrol hydrochloride, a new antidepressant drug, Am. J. Psychiat. *111*:832–836 (May) 1955.
5. Forster, W.; Henderson, L., and Schultz, S.: The clinical effects of α-(2-piperidyl) benzhydrol hydrochloride (Meratran) in states of inactivity in elderly psychiatric patients, Canad. M. A. J. *72*: 678–681 (May) 1955.
6. Gelvin, E. P.; McGavack, T. H., and Keniosbero, S.: α-(2-Piperidyl) benzhydrol hydrochloride (pipradrol) as an adjunct in the dietary management of obesity, New York J. Med. *55*:2337-2338 (Aug. 15) 1955.
7. Gelvin, E. P.; McGavack, T. H., and Pooge, R. C.: α-(2-Piperidyl) benzhydrol hydrochloride (Meratran) as an anorexigenic agent in the management of obesity, Clin. Res. Proc. *3*:40-41 (Feb.) 1955.
8. Levy, S.: Mild depression states, Northwest Med. *53*:1233–1236 (Dec.) 1954.
9. Monroe, R. R.; Heath, R. G.; Mickle, W. A., and Miller, W.: Cortical and subcortical recordings correlated with behavior in patients and animals during the administration of rauwolfia, Thorazine, and Meratran, Psychiatric Research Reports, Washington, D. C., American Psychiatric Association, July, 1955, pp. 25–44.
10. Pomeranze, J.: A new antidepressant, J. Gerontol. *9*:486 (Oct.) 1954.
11. Schut, J. W., and Himwich, H. E.: The effect of Meratran on twenty-five institutionalized mental patients, Am. J. Psychiat. *111*:837–840 (May) 1955.

the December issue of the journal

Antibiotics & Chemotherapy

will contain the following articles:

Colorimetric Determination of Nitrofurazone, Nitrofurantoin, and Furazolidone in Plasma, by James A. Buzzard, Dorothy M. Vrablic, and Mary F. Paul; **Tetracycline, Oxytetracycline, and Chlortetracycline—Correlation of in Vitro Sensitivity Tests,** by Howard E. Lind and Ellen Swanton; **Chemotherapy of African Sleeping Sickness. II. Chemotherapy of Experimental *Trypanosoma gambiense* and *Trypanosoma rhodesiense* Infections in Mice (Mus Musculus) with a New Antibiotic, Amphomycin,** by Ardzroony Packchanian; **Isolation and Characterization of Two Mycothricin Complexes,** by G. Rangaswami, C. P. Schaffner, and S. A. Waksman; **Cycloserine, Experimental Studies,** by J. N. Spencer and H. G. Payne; **Some Inadequacies of Culture Transfer Data as Indices of Drug-resistance Rates,** by Henry P. Treffers.

Antibiotics & Chemotherapy is published monthly by
MD Publications, Inc. • 30 East 60th Street • New York 22, N. Y.
Subscription Rates: $15.00 for one year; $39.00 for three years.

GENERAL PRACTICE CLINICS

This section of General Practice Clinics features reports on papers delivered at current medical meetings in the United States and abroad.

Approaching the Problem of Radiation Hazards

Hamilton, Ontario.—Though radiation hazards from roentgen-ray equipment, beta-ray thickness gauges, cobalt 60 courses, and atomic power plants are of considerable concern, they should not stand in the way of large-scale atomic energy developments if the problem is met intelligently, states Henry G. Thode (McMaster University).

The biologic damage caused by present levels of radiation is "essentially negligible," and the amount of background radiation could be increased sixfold without serious genetic consequences.

Nerve tissue and brain tissue are more resistant to ionizing radiation. Pipetting in a radiologic laboratory should be forbidden. Blood tests should be mandatory for all applicants for work of this kind. Dr. Thode said the department of health and welfare in Canada keeps a permanent record of radiation exposure of workers in laboratories or plants where radiation is high.

(Presented before the Combined Section Program of the Ontario and Quebec Industrial Physicians, Hamilton, Ontario, Canada, Sept. 26–28, 1956.)

Penicillin Still Safe and Useful

Toronto.—Only one in 1,000,000 injections of penicillin produces a sensitive reaction, says K. J. R. Wightman (University of Toronto). "It is still one of the safest and most useful drugs and there is no reason to be disillusioned about it," he says.

"A period of unwarranted confidence in antibiotics has ended and there is a tendency to swing in the opposite direction. Fears of lowering collective immunity have been expressed. This is only speculation with nothing to back it up, but it is food for thought," he adds.

Dr. Wightman says the bacteriologist has more and more help to offer the physician in antibiotic therapy. In these days, a physician who does not use a bacteriologist's services after a patient has failed to respond to an antibiotic is as far out of date as an "appendectomy on the kitchen table," he says.

(Presented before the Combined Section Program of the Ontario and Quebec Industrial Physicians, Hamilton, Ontario, Canada, Sept. 26–28, 1956.)

Psychotherapy in Epilepsy

Berlin.—Psychotherapy in epilepsy is an important aid to medical treatment, says I. H. Schulz (Berlin). Analysis can stabilize the personality and remove emotional situations provoking seizures. In children especially, hypnosis can be used to provoke seizures and to establish a clear diagnosis. Hibernation has been effective in reducing the number of seizures in many patients, and a method of relaxation and self-hypnosis first described by Schulz has been used by about 100 epileptics to stall seizures in the aura stage.

(Presented at the meeting of the German Society of Neurosurgery, German Society of Neurology, and German EEG Society, Berlin, Sept. 19–22, 1956.)

Cardiac Patients Good Job Risks

Toronto.—The reluctance of some firms to employ cardiac patients is based on fear, not facts, says D. P. Murnaghan (University of Toronto). Nearly 80 per cent of those who survive coronary thrombosis two months

should be able to return to full employment a month or so later.

Dr. Murnaghan quotes a Boston survey showing that of 121,000 workers employed by companies that did not bar cardiac patients, only 262, or about one fifth of 1 per cent, suffered another coronary thrombosis; of these, 217, or 79 per cent, were re-employed, all but 10 on a full time basis.

"Encouragement, direction, and reassurance is the combination code," Dr. Murnaghan says. "Try to understand how the sick man feels and lend him your strength by demonstrating your capacity to help in every reasonable way. Don't talk to him of anxiety, fear, and inferiority. He already feels these things and wants the comfort of loyalty, self-confidence, and hope."

(Presented before the Combined Section Program of the Ontario and Quebec Industrial Physicians, Hamilton, Ontario, Canada, Sept. 26–28, 1956.)

Single Shot Vaccine for Four Diseases Foreseen

Denver.—The time is not too far distant when the polio vaccine will be successfully combined with the present triple vaccine against tetanus, whooping cough, and diphtheria, according to Lloyd Florio (manager of health and hospitals for the city and county of Denver). That would produce a single shot vaccine useful against all four diseases.

Development of the polio vaccine, he says, represents a "major break-through" in the science of virology. However, he criticizes the speed with which the polio vaccine was introduced to the public in 1955 and blames that haste for "early tragedies." "We must never again be guilty of such haste," he warns.

(Presented before the Colorado State Medical Society, Estes Park, Sept. 5–8, 1956.)

Oral Substitutes for Insulin

Philadelphia.—Oral substitutes for insulin may be quite useful in selected patients, states Joseph T. Beardwood, Jr. (University of Pennsylvania). In blind diabetics and others who have difficulty administering insulin, they can be tried. They are useful mostly for the elderly, stable, obese diabetic, and not for the juvenile. They should not be used n diabetic emergencies, in youths, or in people with liver or kidney damage. Their mode of action seems to be either by the inhibition of an insulin-inhibitor or by the release of bound (inactive) insulin. Toxicity is low, but liver damage, lowered white cell count, or decreased thyroid function should be watched for. The main danger is in attempting the use of these substitutes without carefully observing the state of control of the diabetes.

(Presented at the 7th Annual Institute of the Graduate School of Medicine, University of Pennsylvania, Philadelphia, Sept. 17–21, 1956.)

Radioactive Isotopes for Spotting Future Cardiacs

Berkeley, Calif.—Possibly within 10 years, physicians will be able to give their patients regular routine examinations with radioactive isotopes and spot those patients who are headed for heart attacks in later life, states John H. Lawrence (University of California at Berkeley).

Work is going on at the Donner Laboratory and in several other centers using hydrogen 3 and carbon 14 in tagging for quantity of body fats. Among other goals, that work is pointed toward qualitative tagging of cholesterol, which would enable clinicians to note cholesterol build-up in patients by comparative examinations. Cholesterol is the fatty substance that builds up inside arterial walls, slows blood circulation to a point where clots are formed, and thus sets the stage for coronary occlusions.

"We may be able to screen out those patients who, because of cholesterol, appear to be candidates for heart attacks in later life," Dr. Lawrence says. "But even so, that will still leave us with the problem of what to do about it."

Diet restrictions to cut down animal fat

intake already are used with postcoronary patients in the theoretical hope of halting further cholesterol build-up. This work has not been experimentally proved, and furthermore, no method has yet been devised to reverse cholesterol build-up.

Dr. Lawrence believes that the Russian basic atomic scientists—physicists—are well advanced in such practical applications of atomic knowledge as weapons manufacture. But he grades Russian atomic medicine right now as "very low."

(Presented before the Colorado State Medical Society, Estes Park, Sept. 5–8, 1956.)

"The Human Element" in General Practice

San Francisco.—General practitioners should not ignore the human element in dealing with psychologic problems they encounter in their practice, cautions Alexander Simon (University of California).

"The fact that the newer so-called tranquilizers are replacing barbiturates as a favorite prescription for the tense, anxious patient is an emphatic indication that many of us still suffer from the authoritarian delusion that giving a patient something to take—a pill, perhaps—or doing something to him—like surgery or electrical treatment—is always the better form of treatment," says Dr. Simon.

"When we do this we forget that the emotional forces within a person, or between two persons such as physician and patient, may be as potent and often more efficacious than medication, electricity, or surgery.

"Whatever place the tranquilizing drugs eventually may find in our therapeutic armamentarium, they can never replace in importance the warm, sympathetic understanding of the physician for his patient's emotional needs," Dr. Simon states.

(Presented before the Washington State Medical Association, Seattle, Sept. 16–19, 1956.)

Blood Grouping and Disease Susceptibility

London.—Evidence is accumulating that there is a marked correlation between the particular group to which a person's blood belongs and the diseases to which he is particularly susceptible, reports J. A. Fraser Roberts (London School of Hygiene and Tropical Medicine). The associations described concern mainly the blood groups most commonly used as a basis of classification—groups A, B, and O.

Three associations are now supported by "overwhelming" evidence. The incidence of duodenal ulcer is now known to be 40 per cent higher in persons with group O blood than in those whose blood belongs to any of the other groups; gastric ulcer is 25 per cent more common among members of the same group. Persons in group A appear to be abnormally susceptible to cancer of the stomach; the incidence of the disease is 25 per cent more for them than for persons with group O or B blood, while there is strong evidence that the same persons are more than normally likely to have diabetes and pernicious anemia.

However, it does not follow from this statistical work that, for example, duodenal ulcers are brought about directly by blood of group O, or even that there is some causal connection between the incidence of the disease and the nature of the blood.

(Presented at the annual meeting of the British Association for the Advancement of Science, Sheffield, England, Aug. 29–Sept. 5, 1956.)

Time Factors in Nutrition

Glasgow.—In a discussion of taste, appetite, and the selection of food, it is appropriate to consider the time factors that operate in nutrition. In other words, does it matter whether we eat different constituents of the diet at the same time or in different meals?

H. N. Munro (Glasgow University) says that there is reason to believe that, in some instances, one constituent of the diet may influence the way in which the body utilizes another dietary component taken in the same meal.

The process by which the body uses

dietary protein involves, first, the breakdown of food proteins to their constituent units (amino acids) by the process of digestion. These units are then reassembled within the body in a different sequence to produce the proteins of the tissues. In this process of protein synthesis, energy is required, which is also supplied by the diet.

Two types of time factors influence the utilization of dietary protein. The first concerns the provision of all the essential units (amino acids) at the same time. A few food proteins are deficient in one or more amino acids, and using these as the sole protein of the diet, it has been possible to show that addition of the missing amino acids necessary to make the protein nutritionally complete must be effected *in the meal containing the deficient protein.* Feeding the requisite amino acid a few hours later will not make up the deficiency.

The second aspect of protein utilization in which the time factor was studied is the provision of energy from the carbohydrate and fat of the diet. There is good evidence that the body's capacity to make use of food proteins is influenced by the amount of energy in the diet. This has been shown to depend on the energy in the meal containing the protein.

However, it has been found in experiments of short duration that carbohydrate (starch and sugar) has an action on protein utilization in addition to that of being an energy source, an action not shared by fat. This effect depends on the carbohydrate being fed along with the dietary protein. It is due to secretion of insulin brought about by the influx of carbohydrate into the body, and it results in amino acids from the digested protein being deposited in the muscles of the body.

It is at present not certain what nutritional importance can be attached to this action of carbohydrate, since in long term studies no special disadvantage seems to result from feeding all the protein and carbohydrate of the diet in separate meals.

(Presented at the annual meeting of the British Association for the Advancement of Science, Sheffield, England, Aug. 29–Sept. 5, 1956.)

New Steroids for Premenstrual Tension

Portland.—The "ubiquitous problem of premenstrual tension" may be controllable with the use of two new steroids chemically related to testosterone, says Carl G. Heller (University of Oregon School of Medicine). The experimental compounds are ovulation suppressants.

Each experimental substance has been tested on 20 women through at least three menstrual cycles with "almost fantastic" results. The compounds, 17-alpha-ethinyl-19-nor-testosterone and 17-alpha-ethinyl-19-nor-estraeneolone, work by inhibiting pituitary action. Ovulation is suppressed, hormone levels in the second half of the menstrual cycle do not rise, there is no sodium retention, and therefore tissues are less irritable. "As a consequence, there is absolutely no premenstrual tension," Dr. Heller said.

The patient takes the steroid in pill form every 12 hours, starting on the fourth day of her cycle. An incidental effect is quickly appreciated by patients as they discover that they can postpone menstruation beyond an inconvenient date by continuing the pills. In such cases, menstruation will begin 24 to 48 hours after the medication is stopped. For women who have prolonged or excessive bleeding during menstruation, either substance, taken by mouth, will stop the flow in 6 to 12 hours.

(Presented before the Washington State Medical Association, Seattle, Sept. 16–19, 1956.)

a new concept of medicine:

Stress

FIFTH ANNUAL REPORT 1955-1956

editors

HANS SELYE, M. D., Ph. D. (Prague), D. Sc. (McGill), F. R. S. (Canada), F. I. C. S. Professor and Director, Institut de Médicine et de Chirurgie expérimentales, University of Montreal.

GUNNAR HEUSER, M. D. (Cologne), Research Assistant and Librarian of the Institut de Médicine et de Chirurgie expérimentales, University of Montreal.

FOR THE CLINICIAN—new clinical perspectives in the treatment of diseases of adaptation.

FOR THE RESEARCH WORKER—a wealth of experimental data in biopathology and endocrinology.

FOR THE TEACHER—the most complete survey of the stress concept in modern medicine. In addition to Dr. Hans Selye's own original research work, special articles include:

special new articles

- PRIMARY ALDOSTERONISM, A NEW CLINICAL ENTITY by Jerome W. Conn and Lawrence H. Louis, University of Michigan.
- HORMONAL INFLUENCES ON INFLAMMATION AND DETOXIFICATION by T. F. Dougherty and R. D. Higginbotham, University of Utah.
- STRESS AND CATHECOL HORMONES by U. S. von Euler, Pysiologiska Institutionen, Stockholm, Sweden.
- ADRENAL INFLUENCES UPON THE STOMACH AND THE GASTRIC RESPONSE TO STRESS by S. J. Gray, G. Ramsey, R. Villareal and L. J. Krakauer, Peter Bent Brigham Hospital and Harvard Medical School.
- THE ROLE OF THE ADRENAL CORTEX IN THE ETIOLOGY OF DISEASE by D. J. Ingle, University of Chicago.
- ADRENOCORTICAL SECRETION AND FACTORS AFFECTING THAT SECRETION by D. H. Nelson, University of Utah.
- NEUROSECRETION by Ernst Scharrer, Albert Einstein College of Medicine, New York.
- SOME OBSERVATIONS ON PSYCHIATRIC STRESS IN INFANCY by R. A. Spitz, New York Psychoanalytic Institute.
- CORTISONE IN RELATION TO LYMPHOID TISSUE AND IMMUNITY by Herbert C. Stoerk, Merck Institute for Therapeutic Research.

A handsome, richly bound, fully illustrated volume of more than 800 pages, with a durable hard cover, published February, 1956, at the price of $20.00.

MD *PUBLICATIONS, INC., 30 EAST 60th STREET, NEW YORK 22, N. Y.*

A new, essential, and timely book

ANTIBIOTICS ANNUAL 1955-1956

Edited by Henry Welch, Ph.D., and Félix Martí-Ibáñez, M.D.

Proceedings of the Third Annual Symposium on Antibiotics, Washington, D. C., November 2, 3, and 4, 1955

150 REPORTS ON THE LATEST FINDINGS IN ANTIBIOTICS

by

375 AUTHORS REPRESENTING 16 COUNTRIES

Panel Discussions

- Long-Term and Prophylactic Use of Antibiotics—Harry F. Dowling, Moderator
- Penicillin V—Morton Hamburger, Moderator
- True Significance and Real Incidence of Reactions Following Clinical Use of Antibiotics—Maxwell Finland, Moderator

Some Selected Subjects Among the 150 Papers

- New developments in streptomycin therapy;
- A comparison of various antibiotic agents in pre and postoperative therapy;
- Further reports on the new antibiotic cycloserine;
- Complete descriptions of research on 12 new antibiotics: carbomycin, spiramycin, eulicin, 1968 (an antifungal agent), actidione, thiostrepton, amphotericin, streptolydigin, cathomycin, rubidin, vancomycin, puromycin;
- The value of combined antibiotic-vitamin therapy;
- Newest indications for tetracycline therapy;
- 11 reports on laboratory procedures for antibiotics, including sensitivity and synergistic studies;
- Penicillin V, the new oral form of penicillin: its pharmacology and clinical usefulness;
- Antibiotics in animal husbandry: growth studies, meat preservation, and control of animal infections;
- 7 reports on resistance as a problem in antibiotic therapy, plus re-evaluations of side effects following administration of antibiotics.

ONLY $10.00 per copy for this attractive, hardbound volume of about 1,000 pages in length, including charts and illustrations.

A Unique and Indispensable Volume for Every Physician, Research Worker, and Teacher

To order copies, write the publisher:

MEDICAL ENCYCLOPEDIA, INC., 30 East 60th Street, New York 22, N. Y.